ATSDR Agency for Toxic Substances & Disease Registry

Public Health Assessments & Health Consultations

PUBLIC HEALTH ASSESSMENT

CENTRAL WOOD PRESERVING COMPANY
SLAUGHTER, EAST FELICIANA PARISH, LOUISIANA

I. SUMMARY

The Central Wood Preserving (CWP) site is a former wood treating facility located approximately 20 miles northeast of Baton Rouge, in the city of Slaughter, East Feliciana Parish, Louisiana. CWP operated from 1950's until 1991. From the beginning of the operation until January 1973, creosote was used exclusively for wood-preserving operations. However, in 1973, the facility was sold and the use of creosote was discontinued. Wolmanac, a solution of copper, chromium, and arsenic salts (CCA) replaced creosote and was utilized as the main wood preserving agent from 1973 until 1991.

The CWP site contaminants of concern include arsenic, chromium, copper, and polycyclic aromatic hydrocarbons (PAHs). The site was placed on the United States Environmental Protection Agency's (EPA's) National Priorities List (NPL) in May 1999. This public health assessment was prepared by the Louisiana Department of Health and Hospitals, Office of Public Health (OPH), Section of Environmental Epidemiology and Toxicology in cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR).

The CWP site is bordered by woodlands to the north and south and a creek and associated wetlands to the east-southeast. Nine homes which were built to house CWP workers on the western side of the North Property have been removed. A single row of homes is present on the east side of the site. The former facility operations area drains into the wetlands. Past completed exposures may have occurred to on-site workers via incidental ingestion and dermal contact with soil and sediment, and inhalation of contaminated dust particles in the air. Current potential exposures may occur to trespassers (especially children) via ingestion and dermal contact with on-site contaminated soil and/or sediment or inhalation of contaminated dust particles. Current potential exposures to off-site soil and sediment may occur to trespassers or residents, especially children, living and playing near the site via ingestion or dermal contact with contaminated soils and sediments. Potential future exposures to on-site and off-site soil contamination may occur to trespassers (especially children), and residents (especially children) via incidental ingestion and dermal contact or inhalation of contaminated dust particles.

Currently the soil and sediment exposure pathway is the main on-site pathway of concern. The levels of contaminants present in the on-site North Property soils and on-site soil/sediments associated with the Unnamed Creek at the CWP site represents a public health hazard. It is estimated that approximately 140 people live within one mile of the site.

The Office of Public Health, Section of Environmental Epidemiology and Toxicology recommends that the U.S. Environmental Protection Agency (EPA) 1) repair fencing to the South Property of CWP and maintain the fencing around the entire site to prevent public access, 2) continue groundwater monitoring efforts, 3) take action to prevent off-site migration of site-related contaminants by implementing dust suppression techniques during remedial activities, 4) conduct air monitoring to monitor the effectiveness of dust suppression and to monitor for site-specific airborne pollutants.

EPA Region 6 has met with the community and reported that no health concerns have been raised. However, site-related concerns were expressed regarding the material from the site having the potential to enter the creek and harm wildlife living downstream.

On July 22, 2000, three staff members of the Office of Public Health, Section of Environmental Epidemiology and Toxicology administered a Needs Assessment (NA) in the community adjacent to the CWP site in Slaughter, LA (East Feliciana Parish). The heads-of household were administered a two-page survey and completed a shorter survey for each household member. A total of nine household (30 participants) surveys, all African American, were completed on a door-to-door basis. There were twenty-one (70%) female participants and nine (30%) male participant interviewed. There were thirty health conditions reported by an adult age group (over 18 years of age) with twenty-two (73%) reporting no health problems. There were five (55%) of the heads-of-household who had seen a doctor and four (44%) who had been to a hospital within the last six months. Five of the heads-of-household (56%) reported their children did not play in the ditch and three (33%) said their children did. Seven participants (78%), both males and females, reported having no concerns related to environmental issues.

On August 21, 2001, OPH attended the Slaughter Town Hall meeting to present the residents with the Public Health Assessment for the 30-day public comment period and to address community health concerns. About 40 residents attended the meeting, with concerns regarding the remediation process, the depth of soil contamination, the source of the town's drinking water supply, and groundwater quality.

II. PURPOSE AND HEALTH ISSUES

At the request of the Agency for Toxic Substances and Disease Registry (ATSDR), the Office of Public Health, Section of Environmental Epidemiology and Toxicology (OPH) at Louisiana Department of Health and Hospitals is carrying out this public health assessment to determine the public health importance of soil and water pollution at the Central Wood Preserving Company in East Feliciana Parish, Louisiana. We reviewed site-related information to enable us to better assess and define pathways of exposure. Also, this public health assessment contains recommendations to reduce or prevent exposures, as well as identify the need to collect additional site-related information that may impact human health.

The 1986 Superfund Amendments and Reauthorization Act to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 directs ATSDR to do public health activities linked with real or possible exposures to harmful chemicals let out into the environment. Among those activities, ATSDR was assigned authority to do a public health assessment for each facility or site listed or recommended to be listed on the National Priorities List (NPL) within one year of the listing. ATSDR may carry out a public health

assessment for a facility or spill when asked by a person or group. The Central Wood Preserving site was proposed for NPL in 1998.

III. BACKGROUND

A. Site Description and History

The Central Wood Preserving (CWP) site is an abandoned wood preserving facility which operated from the 1950s until January 1991. Until 1973, creosote was exclusively used for wood preserving operations. After 1973, the use of creosote was discontinued and replaced with Wolmanac, a solution of copper oxide, chromic acid, and arsenic acid [1]. On May 10, 1999, the site was added to the United States Environmental Protection Agency's (EPA's) National Priorities List (NPL). The NPL is a list of uncontrolled or abandoned sites eligible for cleanup under the federal Superfund program.

The CWP site is located east of the City of Slaughter in East Feliciana Parish, Louisiana. The mailing address of CWP is Route 1, Box 95, Slaughter, Louisiana. The property is currently vacant and is partially fenced. The facility is situated on approximately 17 acres of land which is bisected by Louisiana State Highway (LSH) 959 to create a north and south property (Figure 1, Appendix A). The property is bordered by woodlands to the north and south, residential property to the north west and north east and an unnamed creek and associated wetlands to the east-southeast. Two on-site drainage pathways flow into an unnamed intermittent creek located on the east side of the site. The creek runs along the east-southeast side of both properties (designated the "Unnamed Creek" in historic site documents). This creek flows downstream to intersect with Little Sandy Creek, located approximately 1 1/2 miles south of the site. Little Sandy Creek is used for fishing.

The north property (NP) is the portion of the site where the wood treating chemicals were stored, applied and disposed. The chemicals used include creosote and a solution of copper oxide, chromic acid, and arsenic acid (known as CCA). The north side is enclosed by a six-foot fence and a locked gate. The arsenic concentrations in soil are above the site-specific background. Those concentrations extend beyond the northern property boundary to the limit of the investigation area. There is one well located on the north side of the property but its use is unknown.

The south property (SP) was used formerly as a saw mill and open storage area for treated wood products from the facility. This area is partially fenced (on the west and north sides) and access is unrestricted; it is bordered to the south by a wooded area and to the east by the Unnamed Creek.

In March 1992, the Louisiana Department of Environmental Quality (LDEQ) conducted a site visit and observed twelve buildings, including boiler rooms, storage barns and offices and ten storage/pressure treatment tanks located on the site.

On October 22, 1992, the United States Environmental Protection Agency (EPA) completed a preliminary site assessment following a request by the LDEQ. The results showed elevated levels of arsenic and chromium in soil and sediment, and asbestos fibers in tank insulation samples. During the investigation, sample collection was limited to source waste material, surface soil, sediment, and tank insulation material.

From July 1993 through June 1995, three series of sampling events were conducted at the property by EPA. Elevated concentrations of arsenic, chromium, copper, lead and polycyclic

aromatic hydrocarbons (PAHs), all substances associated with former wood treating operations, were detected in soil samples collected on the CWP property and in sediments in the wetlands to the east-southeast of the property [1].

In December 1994, a total of 37 soil and sediment samples from the Unnamed Creek were collected including background soil and sediment samples. Analytical results from those samples found elevated concentrations of arsenic, chromium, and organics in on-site and off-site samples. No subsurface soil (two feet below ground surface (bgs)) or surface water samples were collected during those assessments [2].

By 1994, LDEQ reported that a sawmill and a second building had been sold and taken off the site. On April 12, 1995, the EPA time-critical removal action removed 1,520 cubic yards of contaminated surface soil near the main facility operations, on-site tanks, the tank contents and the contents of the containment basin. The EPA also sandblasted and backfilled the containment basin and removed three of the original 12 structures. In April 1995, a security fence was constructed around the site by EPA.

In 1998, the site was proposed to the National Priorities List, and a Remedial Investigation/ Feasibility Study (RI/FS) was initiated. The site was formally added to the NPL in May 1999. The 1999 RI was designed to provide focused data collection for the previously-identified indicators of contamination, chromium, arsenic and selected PAH's. The media sampled on-site included soil, sediment, surface water and groundwater. Off-site media was also sampled and included off-site soil, off-site sediment, off-site surface water and private well water. During this investigation, arsenic, chromium, copper and PAHs were detected in on-site and off-site soils and sediments. The surface sediment samples show elevated levels of both inorganic and organic contamination near the site, and inorganic levels above background in the majority of the downstream portion of the Unnamed Creek.

A total of nine groundwater monitoring wells was installed during the RI. Wells were installed at 10 feet below ground surface (bgs), 45 feet bgs and 60 feet bgs. An existing on-site well at 137 feet bgs was also sampled. The shallow 10 feet wells were installed to check for free phase creosote migration. The on-site shallow groundwater was contaminated with metals and polycyclic aromatic hydrocarbons (PAHs). No water could be recovered from the 45 feet bgs wells and no contamination was found in the 55 to 65 feet bgs aquifer [2]. The off-site private well, which is approximately 1.5 miles south of the site, was free of contamination related to wood preserving [2].

Four public supply wells were identified within 4 mile radius of the site. The public supply wells are installed to depths greater than 1,500 feet below ground surface (bgs). East Feliciana Parish is currently on public water supply.

X-Ray Fluorescence (XRF) screening of the on-site buildings and debris for copper, chromium, and arsenic (CCA) and other inorganic compounds was performed and showed lead detections on the outside walls of Building B-1, and detection of arsenic and chromium, on the interior of Building B-4 [2].

Part of the CWP site is presently on the property of the East Feliciana Parish Police Jury. The north property (NP) of CWP is 10 acres in size of which 6 acres are owned by the Parish and 4 acres are owned by private individuals. The south property (SP) is 7 acres. Based on sampling completed to date, approximately 7.3 acres of soil within the CWP property boundaries are contaminated [1].

B. Site Visit

On January 28, 1999, staff from OPH visited the CWP site along with EPA representatives. The site was overgrown with vegetation. Most of the north property (NP) is enclosed by a six-foot fence built by EPA in 1995. A portion of the fence on the south property (SP) of the site was in disrepair and allowed access to the site.

The SP, south of Louisiana State Highway (LSH) 959, is where the lumber yard was located, and it is also where the treated wood was stored. There was an overflow of treated wood at the site during the time of the visit. A boiler building encloses two boilers, and is located in the southwest portion of the process area. Evidence of wood chips being used as fuel was located near the larger boiler, while the smaller boiler appears to have utilized natural gas.

The NP, north of Louisiana State Highway 959, is more contaminated than the SP. The kiln building, also located on the NP, contains two kilns and a controller/operator's room. There is at least one well located on the NP, which is closed. Many of the buildings that were used by CWP remain intact [4].

Mills Lane is a single road on the east side of the NP. Eleven homes are located along Mills Lane. The homes are separated from the site by a creek and a wooded area. The residents along this road have vegetable gardens, fishing ponds and chicken coops.

On July 22, 2000, staff members from OPH visited the site. The NP fence which was visible was in place and monitoring instruments could be seen from the highway. The SP buildings remain in place and, because of the broken fence, this part of the site continues to be accessible to trespassers. During this site visit a Needs Assessment was administered to a community which borders the east side of the Central Wood Preserving site. Appendix C show an Executive Summary of the Needs Assessment results.

C. Demographics, Land Use, and Natural Resource Use

The CWP site is located in Slaughter, which had a population of 827 in 1990. For East Feliciana Parish, the total population in 1990 was 19,211. The Parish is predominantly Caucasian (53%). African-Americans comprise 47% of the parish population and other races comprise less than 1%. According to the 1990 census, the median household income for East Feliciana Parish was $20,139. The community surrounding the site lives in low to middle income housing [5].

Approximately 140 people live within a one-mile radius of the site. The nearest residences were less than 25 feet northwest of the site boundary but they have been removed. These nine homes were originally constructed to house plant employees. Eleven homes are presently located along Mills Lane east of the NP.

The land surrounding the site is used for both residential and commercial purposes. There is some pasture land where cattle graze about half a mile from the site. New housing developments have started in the area, and a number of families from Baton Rouge have relocated to new homes on Louisiana State Highway (LSH) 959.

The Louisiana Department of Transportation and Development conducted a well survey and identified two domestic water wells within a one-mile radius of the site. These two domestic wells draw water from a depth of 75 to 85 feet and are no longer in use. Another domestic well, located 1.5 miles south of the site, was identified and sampled by the EPA in March

1999. Its depth is 40 feet. One on-site well installed by CWP, and nine EPA monitoring wells are present on site.

IV. DISCUSSION

A. Environmental Contamination and Other Hazards

In this section, we review the environmental data collected at the site, evaluate sampling adequacy, select contaminants of concern, and list the maximum contaminant concentrations.

We select contaminants of concern based on the following factors:

1. Concentrations of contaminants on and off site. Although background concentrations are useful in determining if contaminants are site-related, contaminants are only eliminated from further consideration if both the background and on-site concentrations are below standard health comparison values. This is necessary to assess the public health risk to all contaminants detected, whether site-related or not.

2. Field data quality, laboratory data quality, and sampling plan design.

3. Community health concerns.

4. Comparison of average maximum on- and off-site concentrations with published Agency for Toxic Substances and Disease Registry (ATSDR) standard comparison values. ATSDR's published standard comparison values are media-specific concentrations used to select contaminants for further evaluation. They are not used to predict health effects or to set clean-up levels. Contaminants with media concentrations above an ATSDR standard comparison value do not necessarily represent a health threat, but are selected for further evaluation. Contaminants with media concentrations below an ATSDR standard comparison value are unlikely to be associated with illness and are not evaluated further.

5. Other health-based guidelines are used for comparison of average maximum on- and off-site concentrations when there are no ATSDR standard comparison values. These include the EPA's references doses (RfDs) and United States Food and Drug Administration's Recommended Daily Allowances (RDAs).

We used the following five ATSDR standard comparison values, in order of priority, to select contaminants of concern:

- Environmental Media Evaluation Guide (EMEG) - derived from ATSDR's Minimal Risk Level (MRL) using standard exposure assumptions, such as ingestion of 50 - 100 milligrams of soil per day (mg/day); and body weight of 70 kilograms (kg) for adults. The child EMEG assumes 10 kg body weight and soil ingestion rate of 200 mg/day. MRLs are an estimate of daily human exposure to a chemical likely to be without an appreciable risk of noncancerous illnesses.

- Cancer Risk Evaluation Guide (CREG) - calculated from EPA's cancer slope factors, is the contaminant concentration that is estimated to result in no more than one excess cancer per one million persons exposed over a lifetime.

- Reference Dose Media Evaluation Guide (RMEG) - derived from EPA's Reference Dose (RfD) using standard exposure assumptions. RfDs are an estimate of daily human exposure to a chemical likely to be without an appreciable risk of noncancerous illnesses.

- Drinking Water Equivalent Level (DWEL) - EPA's guidance level for a lifetime exposure concentration protective of adverse non-cancerous health effects, which assumes the exposure to a contaminant is from a drinking water source.

- Maximum Contaminant Level (MCL) - EPA's enforceable drinking water regulations that are protective of public health.

- Secondary Maximum Contaminant Level (SMCL) - EPA's unenforceable federal guidelines regarding taste, odor, color, and certain other non-aesthetic effects of drinking water. The EPA recommends them to the states as reasonable goals, but federal law does not require water systems to comply with them.

ATSDR standard health-based comparison values are used only to select contaminants of concern for further consideration. Identification of a contaminant of concern in this section does not necessarily mean that exposure will be associated with illnesses. Identification serves to narrow the focus of the public health assessment to those contaminants most important to public health. We evaluate the contaminants of concern in subsequent sections and determine whether exposure has public health significance.

1. On-Site Contamination

On-Site Soil
The Central Wood Preserving (CWP) property is bordered by woodlands to the north and south, residential property to the north west and north east and an unnamed creek and associated wetlands to the east-southeast. The creek and wetlands bordering the site flow into Little Sandy Creek, located approximately 1 1/2 miles south of the site. The site is bisected by Louisiana State Highway (LSH) 959 to form the north property (NP) and south property (SP). The NP, which contained the former treatment area, is the more contaminated of the two properties and is completely enclosed by a fence. The SP, which housed the saw mill and storage area for treated wood, has a fence but it is not currently intact.

When the site was operational, wastes flowed by two overland ditches across the CWP property, across Parish property and into the unnamed creek. The fence has been erected to enclose contaminated soils, both on and off of the CWP property. Throughout this document references to the site indicate the land within the fence.

Most on-site and off-site soil samples were collected from a depth of 0 to 2 feet. OPH/ATSDR consider surface soil to be soil collected within the top few inches (0 to 3 inches) below ground surface where human contact and exposure to contaminants are likely to occur.

In October 1992, the EPA conducted a preliminary site assessment following a request by the Louisiana Department of Environmental Quality (LDEQ). In 1992, six soil samples were collected and analyzed for copper, chromium and arsenic and two soil samples were analyzed for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). Elevated concentrations of arsenic (6,900 milligrams arsenic per kilogram soil,

(mg/kg)), chromium (3,500 mg/kg), copper (4,400 mg/kg), and polycyclic aromatic hydrocarbons (PAHs) (260 mg/kg), all substances associated with former wood treating operations, were detected in soil samples collected on the CWP site (Appendix B, Table 1 and 2) [1].

From July 1993 through June 1995, three series of sampling events were conducted at the property by EPA. In July1993, a grid system consisting of 38 50-foot by 50-foot on-site grid blocks and five 5-foot by 50-foot creek grid blocks was established. During this event, nine point composite surface soil samples (0- to 6-inches) were collected from each grid (43 samples). Soil sample results indicated maximum arsenic and chromium concentrations of 13,700 mg/kg and 6060 mg/kg, respectively [18]. In September 1993, more grid blocks were established and sampled. Additional soil samples were collected in December 1994. These samples had elevated concentrations of arsenic, chromium, and PAHs. No subsurface soil (2 feet below ground surface) or surface water samples were collected during those assessments (Appendix B, Table 5) [2].

In January 1999, during the EPA's Remedial Investigation (RI) nine additional on-site surface soil samples were collected and analyzed for hexavalent chromium, total chromium, arsenic and selected PAHs. Subsurface soils were screened for hydrocarbon contamination with Cone Penetration Testing/Rapid Optical Screening Tool (CPT/ROST), a fluorescence-based technology. Screening results were verified by 64 subsurface soil samples. Most of the subsurface soil samples were analyzed for total chromium, hexavalent chromium, arsenic and selected PAHs. An extensive list of VOCs, SVOCs and additional metals were analyzed on 10% of the subsurface soil samples.

Table 5 of Appendix B highlights the Toxic Equivalence Factors (TEFs) for PAHs detected in the on-site soil samples in the SP and NP. The TEF approach was developed by EPA. The individual TEFs are summed and the total reported as the total benzo(a)pyrene equivalents. By using this concept, the cancer potency of the other carcinogenic PAHs can be estimated based on their relative potency to benzo(a)pyrene. The benzo(a)pyrene toxic equivalent for the NP and SP are 402 mg/kg and 102 mg/kg, respectively.

On-Site Soil/Sediments
Samples collected near or in the creek are referred to as soil/sediment samples because both are impacted by contamination carried overland to the Unnamed Creek. Although creek sediments may differ in composition from bank samples, exposure to either media independent of the other is unlikely. A trespasser who would come in the area of the creek would come in contact with both creek sediments and nearby soils.

In July 1993, September 1993, November 1993, May 1994 and March 1999, a total of 36 on-site soil/sediment samples was collected. These samples had elevated concentrations of arsenic (1,100 mg/kg), chromium (2,500 mg/kg), and benzo(a)pyrene toxic equivalents (1,488 mg/kg) as shown in Appendix B, Table 5 and 6.

On-Site Surface Water
In 1999, eight samples of surface water were collected from the unnamed creek adjacent to CWP NP and SP (Appendix B, Table 7). The concentrations in the water were compared to EPA Maximum Contaminant Levels (MCLs) for drinking water. Arsenic (220 micrograms arsenic per liter water (µg/L)), chromium (110 µg/L) and manganese (6,600 µg/L) exceeded their respective MCLs of 10 µg/L, 100 µg/L and 50 µg/L. A CWP worker in the past, or trespasser in the present or future could have been or could be exposed to this water but would not have used it as a source of drinking water. Because this water is not used for

human consumption, surface water will not be discussed further in this document. In addition, according to EPA contractors, there was no impact to off-site areas used for recreation or fishing resulting from excessive on-site surface water levels of arsenic, chromium, and manganese.

On-Site Groundwater
In 1999, during the Remedial Investigation (RI), nine wells were installed, three at 10 ft bgs, three at 45 ft bgs and three at 55 to 65 ft bgs. The well locations were selected to detect contamination on the north property between the wood treatment area and the unnamed creek. Only two of three shallow wells produced sufficient water for analysis. No samples were collected from the wells at 45 ft bgs because they were dry throughout the RI sampling effort. Three wells at 55 to 65 ft bgs and an existing on-site well at 137 ft bgs were sampled. The samples were analyzed for VOC's, SVOC's and selected metals and hexavalent chromium.

The on-site shallow groundwater was contaminated with low levels of arsenic (maximum of 7.53 mg/L) [2]. Arsenic was detected at 0.0354 mg/L in the 137 feet bgs well. Chromium was not detected above the MCL in any samples. EPA concluded that based upon the groundwater sample results, it appears that no significant contamination migration from the shallow water bearing unit to the deeper aquifer had occurred.

2. Off-Site Contamination

A fence has been erected around the perimeter of the contamination at the CWP site. The fenced area includes both the CWP property and affected adjacent property. For the purposes of this evaluation, we defined "off-site" as the area outside the fenced boundaries of the CWP site but within the area we consider to have been affected by the site.

Off-Site Background Soil and Background Sediment
As part of the 1992 to 1995 sampling effort, several soil and sediment samples were collected in the vicinity during various sampling efforts. During the RI, three additional sediment samples were collected upstream from where the drainage pathway leading from the process area enters the Unnamed Creek. The average arsenic concentration in background soil and sediment samples is 14 mg/kg, and the average chromium concentration in background soil and sediment samples is 22 mg/kg. [2].

Off-Site Soil
From 1992 through 1995 and again in 1999, EPA contractors collected 19 off-site soil samples around the boundary of the CWP site. These samples were analyzed for VOCs, SVOCs and metals. Three contaminants of concern, arsenic, chromium and copper, were detected in off-site soil in those samples. All were found in concentrations above their respective comparison values for soil. The 1999 off-site soil samples found no soil contaminants which exceeded comparison values [4].

Off-Site Soil/Sediment
Between 1992 and 1995, EPA contractors collected ten off-site sediment samples. They were collected at 100 foot intervals beginning where surface water run-off entered the unnamed creek. They were taken to determine if a release to the surface water pathway had occurred and to determine the extent of contamination within the creek. These samples were analyzed for inorganic and organic constituents. Arsenic (126 mg/kg), chromium (257 mg/kg) and PAHs were detected at varying concentrations, with 8 samples exceeding background levels of 14 mg/kg arsenic, and 7 samples exceeding background levels of 22 mg/kg for chromium

(Appendix B, Table 3 and 4) [2]. Exposure and toxicological information regarding these contaminants can be found in the following sections of the document.

In 1999, EPA contractors collected 13 surface soil/sediment samples (0-3 inches bgs). The soil/sediment samples were analyzed for arsenic, total chromium, hexavalent chromium, and PAHs (Appendix B, Table 5 and 6). No hexavalent chromium was detected. Two metals, arsenic (590 mg/kg) and chromium (2800 mg/kg), were found in concentrations above their respective comparison values for soil of 20 mg/kg and 200 mg/kg [4].

Off-Site Surface Water
In 1999, seven samples of off-site surface water were collected from the unnamed creek beyond where it is enclosed by fence. The water is considered off site at this point (Appendix B, Table 7). The concentrations in the water were compared to EPA Maximum Contaminant Levels (MCLs) for drinking water. Arsenic and manganese exceeded their respective MCLs. A resident or trespasser in the past, present or future could be exposed to this water but not in the quantity of drinking water consumption. Because this water is not used for human consumption, off-site surface water will not be discussed further in this document.

Off-Site Groundwater (Residential Well)
In 1999, a sample was taken from the single residential well identified. It is located 1.5 miles downgradient from the site (Appendix B, Table 8). The well is approximately 40 feet deep. The sample was analyzed for inorganic and organic constituents. Aluminum, bis (2-ethylhexyl) phthalate, iron and sodium were identified as contaminants of concern in the residential drinking water sample [4] (Appendix B, Table 8).

Calcium and potassium were also identified in the domestic well water sample. They are both routinely found in water, and are nontoxic constituents in water and are not evaluated in this document.

Off-Site Air
No off-site air samples have been collected. Presently, there is no activity at the CWP site, and it is overgrown with vegetation, therefore dust generation is not a current problem. It is not known if airborne off-site migration of contaminants attributable to CWP has occurred. However, since metal (arsenic, chromium, copper) dust particulates could possibly be inhaled through airborne particulate migration, OPH recommends analysis of off-site air during remedial activities at the site, and that dust suppression techniques be used to prevent off-site migration of contaminants. Air monitoring techniques should be employed to determine if dust suppression is effective and if pollutants are found in air.

3. Physical and Other Hazards

During both site visits, we observed an unstable, creeping pile of treated wood and sawdust on the SP. A boiler building enclosing two boilers, is also located in the southwest portion of the process area. Abandoned buildings remain on the site as of the visit in July 1999. The fence deters access to the NP. Access to the on-site buildings on the SP is not restricted.

In 1999, thirteen samples were collected from on-site buildings and analyzed for asbestos. Asbestos containing material was found in two NP locations, B-10 tank insulation and B-1 flooring. Both of these structures remain on site at this time. The B-10 tank insulation is friable and if disturbed, exposure to asbestos could occur. Access to the CWP NP is limited since this section of the site is enclosed by an intact fence.

B. Pathways Analyses

To determine whether nearby residents are exposed to contaminants migrating from the site, ATSDR and OPH evaluate the environmental and human components that lead to human exposure. This pathway analysis consists of five elements: a source of contamination, transport through an environmental medium, a point of exposure, a route of human exposure, and a receptor population.

ATSDR categorizes an exposure pathway as a completed or potential exposure pathway if the exposure pathway cannot be eliminated. Completed pathways require that the five elements exist and indicate that exposure to a contaminant has occurred in the past, is currently occurring, or will occur in the future. Potential pathways, however, require that at least one of the five elements is missing but could exist. Potential pathways indicate that exposure to a contaminant could have occurred in the past, could be occurring now, or could occur in the future. An exposure pathway can be eliminated if at least one of the five elements is missing and will never be present.

In Appendix B, Table 9 identifies the completed exposure pathways, and Table 10 identifies the potential exposure pathways. The discussion that follows incorporates only those pathways that are important and relevant to the site.

1. Completed Exposure Pathways

On-Site Soil
A completed exposure pathway to on-site soils existed in the past for employees of CWP who worked at the wood treatment plant when it was operational. Workers could have been exposed at both the NP and SP. Contaminants found in the on-site soil that workers could have been exposed to include arsenic, chromium, copper, and creosote. Exposure could have occurred through ingestion, inhalation and dermal contact. The level of exposure would have been controlled by the type of jobs performed and personal protective equipment used.

The NP has an intact fence. Therefore, current exposure is unlikely. Future exposure will occur if trespassers were to cut or climb the fence or future workers needed to access the site. The SP is partially fenced so, in addition to past worker exposure, current and future exposure pathways where trespassers would be exposed to surface soils are possible. A teenager or adult would be the most likely is to trespass at the SP. The site is too distant from the nearest homes for young children to trespass unless accompanied by an adult. Remediation activities should eliminate the soil exposure pathways in the future.

On-Site Soil/Sediment
On-site soil/sediments includes drainage pathways to the Unnamed Creek on the NP and sediment in Unnamed Creek adjacent both the NP and SP of the site. Soil/sediments at the NP are enclosed by the fence while SP soil/sediments are accessible. During the Needs Assessment conducted by OPH, three of nine heads-of-households answered that their children played in the ditch, also called the Unnamed Creek, that feeds into Little Sandy Creek. This ditch is considered to be on-site because it has been impacted by CWP drainage and contains arsenic and chromium above background levels. Exposure to on-site soil/sediments is considered a completed past, present, and future pathway.

Past exposure through dermal contact and possibly ingestion, may have occurred to CWP workers or children who may have trespassed on the site following its closure but before fencing was erected. Present and future exposure may occur to those who trespass onto the site. Trespassing onto the SP is more likely because of its accessibility.

On-Site Air
Levels of PAHs, arsenic, chromium and copper in on-site soil and sediment are elevated above background levels found in this area. Therefore, dust generated from past on-site activities may have been inhaled by CWP workers which could have resulted in exposure to PAHs and metals.

Currently, the site is overgrown with vegetation, with more pronounced growth on the NP. However, in the present and future, until remediation is complete, trespassers may be exposed to site contaminants through the inhalation of particulate material. Dust is more likely to be generated on the SP as it is less vegetated and because a car can be driven on the property since the fence is broken.

2. Potential Exposure Pathways

On-Site Soil
The NP is surrounded by a six-foot fence, but future exposure will occur if trespassers were to cut or climb the fence or future workers need to access the site. Trespassers could also be exposed to the surface soils on the SP in the future more easily because the site is only partially fenced.

Off-Site Air
In the past, there was a potential for residential exposure through inhalation of volatile constituents of creosote and particulate matter that may have migrated off site via the air. In the past, homes for workers were situated on the western area of the NP. This pathway is considered potential because it is not known whether levels of contaminants in the air would reach a level that could cause an adverse health effect. This pathway does not potentially exist at present, as the site is overgrown with vegetation and there is no activity at the site which could cause dust generation.

Off-Site Soil/Sediment
Off-site soil/sediments are the soils and sediments in and around the Unnamed Creek which are not within the fence which surrounds the site. These soil/sediments are south of the SP and are difficult to access because of their distance from the road and thick vegetation. Arsenic concentrations above background levels were found in the Unnamed Creek soil/sediment beyond the CWP site. This pathway is considered potential because it has not been confirmed that people access this portion of the creek. Any exposure which would occur would be of short duration due to distance of the creek from the homes and the inaccessibility of the creek and soil/sediment. Contact with off-site creek soil/sediments could have occurred in the past, may be presently occurring or may occur in the future.

C. Public Health Implications

1. Toxicological Evaluation
In this section, health effects that could result from exposures to contaminants at the CWP site are discussed. Information on the toxicity of constituents found in completed exposure pathways is presented below. People can only be exposed to a site contaminant if they come in contact with it. In order to understand health effects that may be caused by a specific chemical, three factors affecting how the human body responds to exposure need to be considered. These factors include the exposure concentration, the duration of exposure, and the route of exposure. Individual characteristics of each human such as age, sex, nutritional status, and overall health can affect how a contaminant is absorbed, distributed, metabolized

or eliminated from the body. Together, these factors determine the individual's response to chemical contaminants and what health effects may occur for that individual.

To evaluate health effects, ATSDR has developed a minimal risk level (MRL) for contaminants commonly found at hazardous wastes sites. The MRL is an estimate of daily human exposure to a contaminant below which non-cancerous, adverse health effects are unlikely to occur. MRLs are developed for each route of exposure, such as ingestion and inhalation, and for the length of exposure, such as acute (less than 14 days), intermediate (15 to 364 days), and chronic (greater that 365 days). For determining possible exposures to contaminants in soil, contaminant levels in the soil are used. Cancer risk is calculated using the EPA cancer slope factors and other exposure assumptions. These are theoretical risks, based on conservative (i.e., protective) assumptions.

Factors such as duration of exposure, age, and body weight are used to help estimate the amount of a contaminant that might have entered a person's body. For example some young children between the ages of 1 to 6 years old are known to put everything in their mouth (pica behavior). This behavior increases their chances of being exposed to soil contaminants. The assumptions for exposure calculations for a young child are a body weight of 10 kilograms (approximately 22 pounds), with an ingestion rate of 5,000 milligrams of soil per day. The assumptions for an older child (7 years or older) are a body weight of 16 kilograms (approximately 35 pounds) and a soil ingestion rate of 200 milligrams per day. The adult assumptions are a body weight of 70 kilograms (approximately 150 pounds), and a soil ingestion rate of 100 milligrams per day. In addition, the maximum concentration found in a particular media was used for calculating risks and doses, so a worse case scenario was evaluated.

Metals

Arsenic

Arsenic is found naturally in soils and rocks. Certain industrial activities release arsenic such as desulfuring of gases and/or fossil fuels, the burning of preserved wood, and metal alloy production. Arsenic has had medical uses: antiparasiticals, antisyphilis drugs, and many other older formulations [10].

Arsenic was detected at levels in excess of comparison values in on-site NP and SP soils and on-site and off-site soil/sediments associated with the Unnamed Creek.

Low levels of inorganic arsenic (ranging from 300 to 30,000 parts per billion (ppb) in food and water) can cause irritation to the stomach and intestines, with symptoms such as pain, nausea, vomiting, and diarrhea. Other effects one might experience from ingesting arsenic include decreased production of red and white blood cells, abnormal heart function, blood-vessel damage, and impaired nerve function, which causes a "pins and needles" sensation in the hands and feet [10].

There is clear evidence from studies in humans that exposure to inorganic arsenic may increase the risk of cancer in the liver, bladder, kidney and lung. Most studies have involved occupational settings where most researchers observe that the risk of lung cancer increases as a function of exposure level and duration. Other studies suggest that people who live near smelters, chemical factories, or waste sites with arsenic, may have a small increased risk of lung cancer [10]. Arsenic has also been shown to cause cancer when it enters the body by the ingestion route. The main carcinogenic effect from ingestion of inorganic arsenic is skin cancer, but it may also increase the risk of internal tumors (mainly of the liver, bladder,

kidney, and lung). According to EPA, arsenic is classified as a group "A" carcinogen, which means that arsenic is a human carcinogen [10]. Because of this fact and the exposure scenarios for on-site workers, there may have been a slightly increased risk of cancer for employees who worked on-site for several years. Worker exposure would have been dependent upon the length of employment at CWP, work performed, and use of protective equipment.

Estimated arsenic exposure doses were calculated using health-based guidance levels for comparison. Standard default values for children were used in calculating the estimated arsenic exposure doses from on-site soils and soil/sediments and off-site soil/sediments. The levels of arsenic in the NP soils and on-site soil/sediments represent a public health hazard. Lower arsenic concentrations are found in the SP soils and off-site soil/sediments so they present no apparent health hazard to former CWP workers or trespassers.

Chromium

Chromium is a naturally occurring element found in soil. It is found in three different states: chromium 0, chromium III (trivalent chromium), and chromium VI (hexavalent chromium), the most toxic form. Hexavalent chromium is used in industrial processes.

Chromium is used in processes such as stainless steel welding, oil production, chrome plating, in the manufacture of pigments, for leather tanning, wood treatment, and water treatment for industrial applications [11]. At the CWP site, hexavalent chromium was used in a chemical wood preservative. Hexavalent chromium can convert to trivalent chromium in soils and sediments dependent upon the soil's chemical make-up and pH.

Health effects associated with ingestion of or dermal contact with chromium VI contaminated water over many years may lead to the enhancement of dermatitis. Other health effects that may occur from exposure to chromium at these levels have not been well characterized. Recent evidence has suggested that exposure to chromium III may cause decreased spermatogenesis in mice; however, this has not been shown to occur in humans. Long-term exposure to chromium has been associated with lung cancer in workers exposed to levels in air that were 100 to 1,000 times higher than those found in the natural environment. Also, long-term ingestion of contaminated soil may result in the enhancement of dermatitis.

The RI samples were analyzed for both chromium (total) and hexavalent chromium (chromium VI). Trivalent chromium was detected in on-site soil (NP and SP) and on-site soil/sediment, and off-site soil/sediment at CWP. No hexavalent chromium was found in the creek soil/sediment samples. The potential exposure doses estimated for all media at the CWP site did not exceed the reference dose for chromium III. It is not likely that a person would ingest the amount of soil necessary to result in adverse health effects [11]. Total chromium concentrations in NP soil, SP soil and the creek soil/sediments present no apparent public health hazard.

Copper

Copper has been assigned a "D" cancer classification, indicating that there is inadequate data regarding its carcinogenicity. Excessive amounts of copper, both inhaled and ingested, can cause adverse non-cancer health effects. Presently, there is no reference concentration for copper. Studies of copper ingestion have identified a Lowest Observed Adverse Effects Level (LOAEL) dose of 0.056 mg copper/kg body weight/day to result in abdominal pains and vomiting. Currently there is no ATSDR MRL nor EPA RfD to estimate noncancerous health effects from ingestion.

Copper was detected in soils on and off the site and in off-site sediments. Copper is an essential nutrient in the human diet and is necessary for good health. For infants and adults, the intakes estimated to be adequate and safe are 0.4 - 0.6 mg/day and 1.5 - 3.0 mg/day, respectively [12]. The copper levels in on-site soils, particularly the NP, and on-site creek soil/sediments represent a public health hazard. The levels of copper detected in the off-site soil/sediments pose no apparent public health hazard to children.

Semi-Volatile Organic Compounds

Creosote

Creosote is a complex mixture of organic compounds produced through the distillation of coal tar. The composition of coal tar and creosote vary, but polycyclic aromatic hydrocarbons (PAHs) make up about 75% of creosote. A description of PAHs is provided below.

Because these compounds are most often found in mixtures rather than alone, information regarding their individual toxicity is lacking. Exposure to creosote vapors can cause respiratory tract irritation. Exposure to creosote and coal tar products has caused skin cancer in animals [13]. Estimates of toxicity are made by using the concentrations of certain PAHs as discussed below.

Polycyclic Aromatic Hydrocarbons (PAHs)

A family of compounds known as polycyclic aromatic hydrocarbons (PAHs) comprise the majority of constituents in creosote. They are also formed by combustion and are often found in the environment in smoke, tobacco, soot, coal and charbroiled meat. PAHs usually occur as complex combinations of chemicals, not as single compounds. More than 100 different PAHs exist. Generally, PAHs are less soluble in water and strongly absorbed to soil, so migration is limited. They bioaccumulate in the food chain and may have additive toxic effects. PAHs can be divided into noncarcinogenic and probably carcinogenic compounds [14].

PAHs were found in on-site NP and SP soils and sediments. Exposure to PHAs through soil ingestion may have occurred in the past to adults who worked at the site and to adults and children who may trespass on the site. Exposure may also occur in the future to adults and children who trespass on the site. There is a potential for trespassers to experience health effects from direct contact with the on-site soils. Dermal exposure to the PAHs contaminated soil may lead to irritation and other skin sensitivities [14].

The concentrations of PAHs found in NP soils and on-site creek soil/sediments present a public health hazard. The PAH levels in the SP soils are lower than at the NP. Based on the intermittent exposure which a trespasser would experience and the lower soil concentrations, the SP poses no apparent public health hazard to a past CWP worker or current or future trespasser.

Residential Well Water

Sodium was detected at 28,000 micrograms per liter (µg/L) in the residential well water sample. This concentration exceeds the EPA's Drinking Water Equivalent Level (DWEL) of 20,000 µg/L. A DWEL is the lifetime exposure level for drinking water at which adverse, noncarcinogenic health effects would not be expected to occur. Although sodium is a component of table salt and is in many foods, the sodium level in the residential well could present a problem to persons who may be on a sodium restricted diet.

Aluminum and iron exceeded the EPA's secondary maximum contaminant levels (SMCL) (Appendix B, Table 6). A SMCL is a level at which indicates a concentration which could cause an aesthetic effect such as disagreeable odor or taste, but not likely a health effect. The levels of aluminum detected in the drinking water were also compared to an ATSDR intermediate oral minimal risk level (MRL) [15]. An estimated aluminum dose for children, weighing 10 kilograms and ingesting one liter of water a day, was calculated. It was determined that the levels of aluminum in the drinking water do not represent a health concern. The levels of iron detected in the drinking water were compared to the recommended dietary allowance (RDA) for iron [16]. An estimated iron dose for children (using the same default values as above) was calculated. The levels of iron in the drinking water do not represent a health concern.

2. ATSDR'S Child Health Initiative

ATSDR recognizes that infants and children may be more vulnerable to environmental exposure than adults in communities faced with contamination of their water, soil, air, or food. This vulnerability is a result of the following factors: (1) children are more likely to be exposed to certain media (e.g., soil or surface water) because they play outdoors; (2) children are shorter than adults, which means that they can breathe dust, soil, and vapors close to the ground; and (3) children are smaller, therefore childhood exposures result in higher doses of chemicals per body weight. Children can sustain permanent damage if these factors lead to toxic exposure during critical growth stages. ATSDR is committed to evaluating their special interests at sites such as CWP as part of ATSDR's Child Health Initiative.

Children who are the most likely to be exposed to contamination at CWP site are the children who lived in the nine homes which have been removed from the western side of the NP or those children currently living in nearby homes. Exposures to media may include:

> On-Site Soil: Children may have been, and may continue to be, exposed to soil when trespassing on the site either alone (older children) or with an adult (younger children).
>
> Off-Site Soil: Children may have been, and may continue to be, exposed to contaminated off-site soil that was impacted by the site.
>
> On-Site and Off-Site Soil/Sediment: Children may have been, and may continue to be, accessing the creek and its associated sediments and soils located either on or off the site.

OPH reflected that children may have different exposure pathways from adults by some of the questions in the Needs Assessment. The Needs Assessment inquired about whether children play in the creek. Because some residents responded that children do play in the creek, OPH used comparison values derived for children, when available.

3. Health Outcome Data Evaluation

There were 30 health conditions reported, which included allergies, anemia, cancer, chest pains, chicken pox, rheumatism, and sinus. There is no conclusive evidence to link these health conditions to the Central Woods Preserving site. We did not evaluate health outcome data for the community around this site. It is unlikely a search of statewide health-outcome data would detect an effect in such a small population. If future environmental investigations

find other contaminants or the community expresses further health concerns, we will evaluate health outcome data as considered appropriate.

V. COMMUNITY HEALTH CONCERNS

A. Public Meetings and Activities

In July 1999, the Environmental Protection Agency (EPA) Community Involvement Plan (Final Draft) was released [3]. EPA staff discussed community issues, concerns and information needs during interviews with interested parties including, residents who live near the site, public officials, community leaders and business persons. The site related concerns most often expressed to EPA staff by interviewees were: (a) materials from the site might have the potential to enter the creek and harm the downstream wildlife, (b) contaminants from the site might affect water quality and (c) the clean up activities could cause more exposure to contaminants than if the site is left undisturbed. As part of the EPA Community Involvement Plan, nearby residents and officials were interviewed about their thoughts on the potential uses of the property following remediation. The individuals interviewed suggested building a park or growing timber on the site when remediation is complete [3].

In July 2000, the Office of Public Health (OPH), Section of Environmental Epidemiology and Toxicology conducted a Needs Assessment in the community adjacent to the Central Wood Preserving (CWP) site. The summary of the findings is presented in Appendix C.

On August 21, 2001, OPH attended the Slaughter Town Hall meeting to present the residents with the Public Health Assessment for the 30-day public comment period. About 40 residents attended the meeting.

B. Community Health Concerns Evaluation

OPH has addressed each of the community concerns about health as follows:

1. What about groundwater?

Please refer to page 11.

2. Where does the city get its water from?

The town of Slaughter obtains its water from wells. These wells are 2,000 and 2,100 feet deep. The water is tested every three years for drinking water contaminants regulated under the Safe Drinking Water Act, including inorganic and microbial contaminants. No contaminants have been found in excess of drinking water standards.

Residents in the vicinity of the CWP site receive water from the East Feliciana Rural Water, Plank Road #2 well. The well is more than 2 miles away from the CWP site. In 1998, OPH performed a scheduled triennial water system test for drinking water contaminants regulated under the Safe Drinking Water Act, including inorganic, organic and microbial contaminants. No contaminants were found in excess of drinking water standards. The water was sampled again in October 2001. Because of the depth of the aquifer and the protective clay layer above the aquifer, it is extremely unlikely that the water in this well could become contaminated with chemicals which have traveled from the CWP site. For more information about East Feliciana Parish drinking water quality contact Matt Ewing at 225-922-1527.

3. How deep does the contamination go?

Answer:

Polycyclic aromatic hydrocarbons (PAHs) were found as deep as 21 to 24 feet below ground surface in several samples. These samples were either underneath the CWP North Property former containment basin or in the drainage pathway to the unnamed creek. Subsurface soil samples from the South Property and the north and west portions of the North Property show lower concentrations of PAH contamination and contamination at shallower depths. The metal contamination on the site typically was in the 0 to 1.5 foot soils.

4. What will the remediation process entail, does it mean excavation?

The Record of Decision states that the selected remedy at the CWP site involves the excavation and treatment of contaminated soil and sediment and the disposal of residual wastes to a permitted off-site waste disposal facility. The selected remedy is one of EPA's presumptive remedies for the treatment of contamination at Wood Treater Sites.

The selected remedy is a comprehensive approach for this site that addresses all current and potential future risks caused by soil and sediment contamination. The remedial measures will prevent exposure to contaminated soil and sediment and will allow for restoration of the site to beneficial uses. Remediation of the contaminated media will also reduce the long-term health risks associated with the contaminants and protect the health of residents living near the site.

The site remedy involves thermal desorption. Approximately 28,260 cubic yards of contaminated soil and sediment will be excavated from the site. Of this amount, approximately 9,200 cubic yards will undergo treatment on-site via thermal desorption to address the creosote contamination. The remaining ash from the thermal desorption as well as the approximately 19,060 cubic yards of arsenic contaminated soil/sediment will be sent off-site to a Resource Conservation and Recovery Act (RCRA) Subtitle C hazardous waste facility for treatment and disposal in accordance with the RCRA Land Disposal Restriction standards.

Since wastes below five feet will remain on-site, the East Feliciana Police Jury has agreed to provide easements, covenants running with the land, and/or deed notices to the affected property as appropriate or as allowed by law. Groundwater monitoring will be undertaken to ensure that the wastes left in place below five feet do not impact the deep aquifer.

VI. CONCLUSIONS

1. Levels of arsenic, copper, and total carcinogenic polycyclic aromatic hydrocarbons (PAHs) detected in the North property on-site soils represent a public health hazard. The fence which is currently in place restricts access to the location of the most contaminated soil and sediments

2. Levels of arsenic, copper and PAHs detected in the on-site soil and sediments at and in the Unnamed Creek are also a public health hazard. The fence which is currently in place restricts access to the location of the most contaminated soil and sediments

3. The on-site and off- site soil samples were collected from a depth of 0 to 2 feet. OPH/ATSDR consider surface soil to be soil collected within the top few inches (0 to 3 inches) below ground surface where human contact and exposure to contaminants are likely to occur.

4. Asbestos containing material was found in two North property locations, B-10 tank insulation and B-1 flooring. Both of these structures remain on site at this time. The B-10 tank insulation is friable and if disturbed, exposure to asbestos could occur.

5. Past exposures of CWP workers to soil contamination may have occurred.

6. On-site groundwater collected from a depth of 10 feet below ground surface is contaminated with site related contaminants. No groundwater contamination was found at the 65 feet depth monitoring well. Surface water in the Unnamed Creek contains some metals concentrations greater than the EPA Drinking Water Standards. The surface water and shallow groundwater are not used for potable or domestic use. Therefore, the surface water and the groundwater pose no public health hazard at the site at this time.

7. EPA has selected a method of remediation which involves the on-site Thermal Desorption of 9,200 cubic yards of creosote contaminated soil and sediment and off-site disposal of 19,060 cubic yards of arsenic contaminated soil and sediment.

8. Remediation of the contaminated media will reduce the long-term health risks associated with the contaminants and protect the health of residents living near the site.

VII. RECOMMENDATIONS

1. EPA should repair fencing to the South property of the CWP site and maintain the fencing surrounding the entire site to prevent public access.

2. EPA should continue to monitor the groundwater.

3. EPA should prevent off-site migration of site related contaminants (e.g., asbestos containing materials located on the North property).

4. During remedial activities at the site, EPA should implement dust suppression techniques to prevent off-site migration of contaminants. In addition, air monitoring should also be employed to determine if the dust suppression techniques being used are effective.

5. EPA should conduct air monitoring to monitor the release of creosote vapors.

VIII. PUBLIC HEALTH ACTION PLAN

The following is a description of actions already taken and those to be taken by the Louisiana Office of Public Health (OPH), Section of Environmental Epidemiology and Toxicology and the Agency for Toxic Substances and Disease Registry (ATSDR) at the Central Wood Preserving (CWP) site and surrounding areas. The purpose of the public health action plan is to ensure that this public health assessment not only identifies public health hazards, but provides a plan of action to mitigate and prevent adverse human health effects resulting from exposure to hazardous substances in the environment. Included is a commitment on the part of OPH/ATSDR to follow up on these actions to ensure that they are implemented.

The public health actions already implemented and planned for the future by OPH/ATSDR are as follows:

Past Actions

1. OPH staff met with representatives of EPA, Region 6, on July 28, 1999, to gather background information on the site and to learn if the community had reported any concerns to them.

2. On July 22, 2000, a Needs Assessment was administered by OPH to the community that bordered the east side of the CWP site.

3. OPH staff attended an EPA public meeting on November 29, 2000, at which the EPA explained the Proposed Plan and all the alternatives presented in the Feasibility Study.

4. The initial version of the Public Health Assessment was completed on December 2000.

5. On January 24, 2001, OPH staff attended an EPA public meeting where comments to the Proposed Plan were recorded.

6. On February 2001, OPH mailed a summary of CWP Needs Assessment to the participants in the survey.

7. On August 21, 2001, OPH released the public comment version of the CWP Public Health Assessment.

Actions Planned

1. Implement community education to inform the community members of the risk associated with site related contaminants and the recommendations made in this public health assessment and the EPA's proposed Remedial Action Plan.

2. Coordinate with EPA during the site remediation and review post remedial soil and sediment sampling to help ensure remedial measures are protective of public health.

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