California Regional Water Quality Control Board
North Coast Region
Geoffrey M. Hales, Chairman

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Linda S. Adams
Secretary for Environmental Protection

Arnold Schwarzenegger
Governor

April 14, 2010

Mr. Antonio Andrade
401 West Mill Street
Ukiah, CA 95482-5435

Dear Mr. Andrade:

Subject: Former Masonite Site in Ukiah

File: Masonite Corporation, 300 Ford Road, Ukiah, California
Case No. 1NMC042

Thank you for your letter of January 14, 2010 regarding the site investigation activities at the former Masonite facility in Ukiah. Your letter is in response to a December 24, 2009 letter from Regional Water Board staff. During a telephone conversation I told you that my response would be delayed, but I do apologize for any inconvenience that my delay has caused. I summarized your concerns and provided responses following each summary. Please contact me if you do not think that your concerns were adequately summarized or addressed.

1. BURIED WASTES

Comment: You agreed with the Regional Water Board statement that it is not technically or economically feasible to require the property owner to drill in every possible location looking for improperly buried wastes without more precise information. You suggest that the Regional Water Board make an affirmative effort, through newspaper and radio advertisement, for example, to request information from the public regarding past site disposal issues.

Response: Instead of newspaper solicitations, Regional Water Board management prefers that the public provide specific information about the site and prior disposal practices through direct contact or by using the Cal/EPA Complaint Link on the Regional Water Board website. This link will lead to a Cal/EPA Environmental Complaint Form that is for anyone that has observed an activity, physical evidence of an activity or has knowledge of what may be a possible illegal act or unauthorized release that caused harm or damage to public health or the environment. The form allows the

complainant's identity to be kept confidential. The link to the complaint form can be found on the left side bar of the Regional Water Board website under the heading "Resources" at: http://www.waterboards.ca.gov/northcoast/ or the form can be directly accessed at: http://www.dtsc.ca.gov/database/CalEPA_Complaint/index.cfm

As we discussed in various telephone conversations, the information must be specific regarding location to allow for an effective investigation. Also, as mentioned in prior letters, if additional contamination is discovered in the future, the site can be re-opened to regulatory oversight based on the new information regardless of the status of the site at that time.

2. HVOC PLUME

Comment: You asked for more information about the HVOC plume investigation. Specifically, you asked for a description of how the HVOC contamination was attributed to the source and how you could find information about the groundwater testing and remediation. You stated that the facility had a poor record of chemical use and suggested that regulatory agencies err on the side of caution when reviewing the site.

Response: The source of the HVOC groundwater contamination was linked to the spline siding line based on more than one line of evidence. (HVOC is an acronym that stands for halogenated volatile organic compounds, a term that includes chlorinated solvents.) Historically, the spline siding process used volatile organic chemicals, which were stored nearby. Another indication of the source is the pattern of contamination that was detected. The direction of the groundwater flow is generally to the east-southeast. The highest concentrations of HVOCs in groundwater are in the northwest portion of the plume (near the spline siding line and the area where the chemicals were stored). The up-gradient and side-edges of the plume were defined by monitoring wells that were not contaminated. The concentrations of HVOCs in the groundwater have decreased over time, and there have never been reports of free non-aqueous phase liquids in the impacted monitoring wells. The last groundwater monitoring report (*Results of 3rd Quarter 2009 Groundwater Monitoring and Sampling Event with Request for No Further Action*, August 21, 2009) showed that six of the 12 monitoring wells continue to have low levels of 1,1,1-trichloroethane, 1,1-dichloroethane, and/or 1,1-dichloroethene. The contamination is low – all detections were below the applicable Water Quality Objectives, except one groundwater sample with 1,1-dichloroethane at a concentration that was equal to the Water Quality Objective. The decrease in contamination may be due to source removal (i.e., solvents are no longer used or stored at the site) and natural attenuation (i.e., degradation by natural processes).

The groundwater monitoring reports and associated data can be found on the Geotracker website. The Masonite Ukiah site is found under two case numbers in Geotracker – 1TMC042 and 1NMC042. If there are reports or information that you cannot access on Geotracker, please let me know and I will assist you.

I appreciate your concern about the use of caution when requiring and reviewing data from a contaminated site. Some of the methods that are used to help ensure that contamination is properly assessed and analyzed are the requirements for a registered geologist or engineer to certify reports and the use of a laboratory that is certified by the State for analytical testing.

3. CONTAMINATION ASSESSMENT

Comment: You raised several points that relate to the adequacy of the site investigation:

- You asked whether the manufacturing process was evaluated for potential chemical by-products, in addition to the chemicals that were used at the site. You are concerned that the use of large quantities of chemicals and high heat could have created chemical by-products that were not investigated.
- You stated that the facility likely used pentachlorophenol in the 1950s.
- You stated that you are concerned the site investigation may be hampered because large numbers of files about the site that should be located in the Mendocino County Environmental Health Department are missing or in disarray.
- You asked if the site has been tested for dioxins that would have settled into shallow soils surrounding the plant.
- You asked whether chemicals found at other Masonite sites have been evaluated at the Ukiah Masonite site.
- You also asked why the facility has been classified as a U.S. EPA Superfund cleanup site.
- You referred to an analysis by an unidentified State toxicologist that concluded that the site was poorly characterized.
- You attached a list of chemicals that you state have been used or found at other Masonite facilities – arsenic, dioxin, iron, mercury, pentachlorophenol, and polychlorinated biphenyls.
- You are concerned because there is no comprehensive list of chemicals used at the facility or of the associated chemical by-products.

Response: Before I address these points, please let me repeat something from my December 24, 2009 letter to you: Regional Water Board staff are familiar

with practices at mill sites and other sites owned by Masonite in the North Coast Region. Staff reviewed the history and nature of chemical uses at the site and at sites with similar operations, and required appropriate testing. Staff also reviewed the past infractions and violations of the California Water Code and incorporated any area of concern into the site investigation. Additionally, the Regional Water Board investigation included reviewing the Mendocino County files for the site. Hundreds of soil and groundwater analyses have been performed at the site to investigate contamination. The investigations have included areas of known releases, areas of potential releases, and groundwater screening.

The Masonite Ukiah facility was a pressed board manufacturer, producing products such as siding, door facing, and indoor paneling. In the manufacturing process, wood chips were heated, slurried, and mixed with resins, waxes and starches, and pressed into products. The facility was not similar in operations to the other Masonite facilities that you cite in your letter. For example, Masonite's Hoopa Veneer site was operated by Humboldt Fir Company and was a lumber mill that used fungicides and wood preservatives such as pentachlorophenol. This is a different type of operation with different chemicals, processes, and potential resulting contamination than at the Ukiah Masonite facility.

The site investigation at the Ukiah Masonite site focused on the areas where chemical releases were likely to have occurred and included a variety of chemicals – petroleum hydrocarbons, volatile and semi-volatile organic compounds, various ethers and alcohols, polynuclear aromatic hydrocarbons, and metals. Polychlorinated biphenyls, dioxins, and furans have also been investigated.

The site was sampled for dioxins (the term dioxins includes 17 polychlorinated dioxin and furan congeners). The investigation focused on areas where dioxins were most likely generated or where combustion ash was stored or applied on the site. Sixty-one samples for dioxins from 21 locations were analyzed and compared to the relevant health-based screening levels known as California Human Health Screening Levels (CHHSLs).[1] The relevant CHHSLs for dioxin-contaminated soils are 4.6 nanograms per kilogram (ng/kg) for residential exposures and 19 ng/kg for commercial exposures. The results of the sampling showed:

- Fifty-one results were below the residential CHHSL of 4.6 ng/kg.[2]

[1] Office of Environmental Health Hazard Assessment. 2005. *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties.* January 2005. Located at http://www.oehha.ca.gov/risk/Sb32soils05.html

[2] Concentration values are 2,3,7,8-TCDD Toxic Equivalents (TEQ) that were calculated using the dioxin TEF method for mammals reported by the World Health Organization (2005) and include 17 polychlorinated dioxin and furan congeners.

- Nine results exceeded the residential exposure CHHSL of 4.6 ng/kg, but were below the commercial CHHSL of 19 ng/kg.
- One result was 20 ng/kg, exceeding the commercial CHHSL.

The sample exceeding the commercial CHHSL was obtained from the former borrow pit in Area 12 at 2' below the ground surface. This was an area in which clinker from the boilers had been deposited. The soils in this area were excavated and removed to a permitted off-site disposal facility. Confirmation samples showed that the remaining soils were below the commercial CHHSL.

I cannot comment on your assertion that the County files from the facility's Hazardous Materials Emergency Planning and Community Right-to-Know Reports are missing or in disarray, but the County does have files related to the facility. The Mendocino County Air Quality Management District office in Ukiah, for example, has about eight linear feet of files on the former Masonite facility, including the AB2588 Hot Spots reports to which you refer. Historic Hot Spots data for the facility are also available online at the California Air Resources Board website: http://www.arb.ca.gov/ab2588/ab2588.htm.

The emissions profile for the Ukiah Masonite plant, when it was operating included maximum emissions of: 1,1,1-trichloroethane, acetaldehyde, acrolein, benzene, formaldehyde, glycol ethers, methanol, ammonia, phenol, sodium hydroxide, and various metals, among others. You have asked why all of the chemicals on the facility's AB2588 list of emissions were not sampled throughout the site.

The AB2588 profile quantified emissions of chemicals to the atmosphere and may not relate to contamination that potentially deposits to the site soil or water. The chlorinated solvents and metals that were reported on the AB2588 profile have been investigated, and, in some cases detected, in soil and groundwater at the site. Some of the chemicals listed in the AB2588 profile are of concern for air quality but do not affect water quality or the site cleanup – they may, for example, contribute to the formation of ozone or contain inhalable particulates. Even for toxic chemicals on the emissions profile that would be of concern if detected in soil or groundwater, the connection between air emissions and site contamination is not unequivocal because air chemistry and transport is complex. Air transport involves processes such as plume rise, advection and convection, dispersion, partitioning, and dry and wet deposition. Chemicals in the air may undergo photolysis and other chemical reactions.

The environmental chemistry of other substances that were reported in the AB2588 system make them unlikely to remain onsite or to contaminate the

site. For example, one of the largest quantities of chemicals released from the facility according to the AB2588 profile was acetaldehyde. In the atmosphere, acetaldehyde undergoes various photolytic reactions with ultraviolet light and hydroxyl radicals in the air. If acetaldehyde is released into shallow soils, it volatilizes rapidly or undergoes microbial degradation. It is not expected to adsorb to the soil. If acetaldehyde is released into water, it volatilizes or biodegrades rapidly and is not expected to remain in the water. Acetaldehyde does not bioaccumulate. Other large quantity air pollutants from the facility's profile include formaldehyde, various glycol ethers, ammonia, and phenol. Formaldehyde released into air is readily broken down by sunlight in less than one hour. Glycol ethers and alcohols that are released into the atmosphere do not tend do not persist in the environment and do not bioaccumulate. Ammonia usually lasts just a few days in the atmosphere before it is deposited or chemically altered. In soils or surface waters, ammonia volatilizes to the atmosphere, binds to particulate matter, or undergoes microbial transformation. Phenols released to the air degrade by gas-phase hydroxyl reactions and do not persist in the air. In soils phenols degrade rapidly through biodegradation. In water, phenol biodegrades or photo-oxidizes.

These examples are offered to show that merely because a chemical was released into the atmosphere from the facility, it does not follow that the substance would be present in soils or groundwater at the site. An assessment of the likelihood of the chemical being deposited after atmospheric release and persisting on-site can assist in identifying chemicals of potential concern at the site.

The list of chemicals that you state have been used or found at other Masonite sites – arsenic, dioxin, iron, mercury, pentachlorophenol, and polychlorinated biphenyls – have either been considered or sampled at this site. Dioxins have already been discussed in this letter. The facility was not a lumber mill and did not historically treat lumber with fungicides. I have seen no evidence that pentachlorophenol was used at the site. Metals, including mercury and arsenic (but nor iron) have been evaluated in soils and groundwater throughout the site. Polychlorinated biphenyls were investigated in two areas – one inside the main plant and one near the area where transformers were vandalized.

I did not find the former Masonite site in Ukiah to be listed on the federal Superfund list. If you have information to the contrary, please send it to me. The internet link to a U.S. EPA website that you sent via email in December showed that the site does not qualify for the NPL (National Priorities List – or the Superfund list).

The assessment by the unidentified State toxicologist to which you refer was vague. It was clear that the unidentified State toxicologist did not review the complete site file. The unidentified State toxicologist asserts that the site characterization is incomplete and that a longer list of chemicals should have been considered contaminants of potential concern. It appears that the unidentified State toxicologist relied only on documents that are available online. Although all of the site documents are available at the Regional Water Board, not all are available electronically. Even considering that only the most recent site documents are available on the Geotracker website, it is not clear if the unidentified State toxicologist looked at both of the Geotracker case numbers for this site. For a good description of the site operational and investigational areas, along with summary tables of the analytical results for soils and groundwater, I refer you and the toxicologist to a July 23, 2004 document, *Results of Remedial Site Investigation Activities*. The document predates the wide use of the Geotracker website, but I obtained an electronic version of the document recently and posted on the Geotracker website. Data since that document are also available on the Geotracker website.

4. BIOREMEDIATION

Comment: In the former stormwater ponds, are the main areas of concern limited to screening for fuel by-products? Why were pond residuals not tested prior to removal?

Response: As described in my letter of December 24, 2009, the former stormwater ponds were treated under the conditions of North Coast Regional Water Quality Control Board Order No. 92-66, *General Waste Discharge Requirements for Soil Bioremediation and/or Aeration Activities*. When the bioremediation reduced the level of contamination to a point that was acceptable for disposal at a permitted landfill, much of the remaining pond sediments were removed for disposal. In order for a permitted land disposal facility to accept material, it must be certified that the material is characterized and appropriate for that site. The materials were tested before removal; land disposal facilities require characterization before accepting wastes.

The constituents of potential concern for the pond liners are petroleum hydrocarbons and polynuclear aromatic hydrocarbons. The presence of wood-related by-products in the ponds also is an issue because they may exhibit characteristics of petroleum hydrocarbons on analytical testing. When data for the treated pond liners were submitted to the Regional Water Board in 2009, the concentrations of petroleum hydrocarbons were found to be below the levels of concern, but the analytical detection limits for the polynuclear aromatic hydrocarbons were not sufficiently low to allow a meaningful comparison to health-based screening levels. Upon

direction from the Regional Water Board, additional samples were submitted to the analytical laboratory and more sensitive tests were performed. The results, which were recently submitted, showed that the concentrations of polynuclear aromatic hydrocarbons were below the laboratory detection limits, except for two constituents. Those constituents, pyrene and phenanthrene, were detected in concentrations that are below the conservative screening levels for residential exposure.

5. SITE REMEDIATION PROCESS

Comment: You expressed concerns about the perceived lack of coordination between the County and the Regional Water Board regarding the site. You stated that "had the County assumed their responsibilities, the community at large would have more confidence in the process and matters would have proceeded with less controversy."

Response: Although this comment appears to be directed toward local agencies, I understand your concern about coordination between regulatory agencies. Sometimes differing missions and limited resources can impede coordination. The Regional Water Board coordinates its activities with local agencies during site investigations and remediation, discusses site issues with County staff, and copies County personnel on all correspondence regarding the former Masonite site.

I appreciate your interest in the site and hope this letter answers your questions. Please feel free to contact me at cwoodhouse@waterboards.ca.gov or at (707) 576-2701 if you have additional questions.

Sincerely,

Original Signed by

Caryn Woodhouse
Staff Environmental Scientist

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cc: Ms. Carre Brown, Mendocino County Supervisor, First District, 501 Low Gap Road, Ukiah, CA 95482
Mr. John McCowen, Mendocino County Supervisor, Second District, 501 Low Gap Road, Ukiah, CA 95482
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