

Regional Water Quality Control Board
North Coast Region

Executive Officer's Summary Report
8:30 A.M., Thursday, December 6, 2012
Santa Rosa

ITEM: 13

SUBJECT: **Update on Wood Ash Management** in the North Coast Region
(*Lisa Bernard*)

BOARD ACTION: None, this is an information item.

BACKGROUND: Wood-fired power plants (also known as "biomass" plants) burn wood chips and other low-grade wood materials in order to produce steam, which then powers a turbine to generate electricity. According to Regional Water Board records, four biomass power plants are located in the North Coast Region. Waste generated from biomass energy production includes the generation of bottom and fly ash as byproducts of wood burning activity.

During the April 2012 meeting of the North Coast Regional Water Board, members of the public raised concern regarding the management of wood ash in the North Coast Region. Specifically, concern was raised regarding potential dioxin contamination related to soil application areas and management practices which may not adequately prevent erosion and uncontrolled movement of ash materials to or towards waters of the state. As a result, the Board requested that staff look into the matter and report back on the status of ash handling at a later Board meeting. That is the purpose of this update.

In the past, Regional Water Board staff worked actively with wood ash generators in this region to develop management requirements and strategies for ash that were protective of water quality. Oversight of the management of wood ash has not been a priority for staff in recent years. Accordingly, the Executive Officer issued an Order (Attachment 1) requiring information regarding the current management practices at each of the four biomass power plants in the region. In response to requests from the generators, the Executive Officer issued an extension of time to comply with submittal of the required reports (Attachment 2). Each of the four ash generators submitted site specific data as required by the Order. This data has been summarized in tables and included as Attachment 3. During today's presentation staff

will elaborate on any preliminary findings associated with the data.

ISSUES:

Biomass energy is generated from burning various fuel sources. Forest management residues (slash) and lumber mill waste (bark, sawdust and wood chips) provide “clean” sources of woody biomass for combustion. Hogged fuel is a common term for urban-generated woody biomass and can consist of chemically treated and painted wood, chips and sawdust. Hogged fuel can also include construction and demolition wood wastes, lumber mill wood wastes, stumps, brush and yard debris. The chemical characteristics of wood ash depend on the types and quality of the fuels burned and the operating conditions and technology of the biomass facility. Information submitted by wood ash generators in the North Coast Region shows a range of power plant operating parameters and chemical compositions in the ash produced, including concentrations of metals and dioxins.

Biomass power plants generate two distinct types of ash, which are generally referred to as fly ash and bottom ash. Fly ash is the lightest-weight component. It rises with the flue gases and is captured by a boiler or incinerator’s air contaminant control equipment. Bottom ash, the material that falls to the bottom of the burner unit, consists of rocks, gravels and other non-combustible materials. Data indicates that of the two materials, fly ash generally has higher concentrations of metals and dioxins.

Wood ash is considered solid waste and is subject to solid waste management requirements under both the Health and Safety Code and CalRecycle regulations. In accordance with those regulations, wood ash may have practical applications for re-use given certain criteria and management practices. However, if improperly managed, ash could pose a threat to water quality.

The most prevalent practice for wood ash management currently used in our region is reuse as an agricultural soil amendment to enhance crop production by raising soil pH (liming). In order to comply with solid waste regulations, ash used for land application must be authorized under the Food and Agriculture Code. In addition, some dairy farms use fly ash to create loafing beds for cows. These practices are currently under evaluation by Regional Water Board staff to determine what, if any, requirements are necessary to ensure protection of water quality.

Other appropriate reuse may be possible, such as slag use in road construction, or incorporation into concrete. However, generators would need to work with Regional Water Board staff to explore the water quality implications for specific practices and / or projects. Alternatively, ash can be legally disposed of at a permitted landfill or other facility permitted to receive ash waste, such as a composting facility using ash as part of their feedstock. Staff received correspondence from one ash generator and two other interested parties urging continued use of wood byproducts as power plant feed stock and reuse of ash as alternatives to landfilling of these materials. That correspondence is included here as Attachments 4-6.

As staff moves to assure that water quality is protected in relation to ash reuse in the North Coast Region, a variety of tools are available to the Regional Water Board. These include, but are not limited to:

- Requiring routine monitoring and reporting;
- Evaluating threshold criteria protective of water quality and human health;
- Requiring implementation of best management practices (BMPs);
- Developing an oversight program to be managed by the generators or another appropriate third party and / or;
- Adding wood ash and reuse to the developing scope of our Agricultural Lands Discharge Program.

RECOMMENDATION: This is an informational item. No recommendations are proposed at this time.

SUPPORTING DOCUMENTS:

1. Water Code Section 13267(b) Order for Submittal of Reports, August 1, 2012
2. Extension of time to Comply with Water Code Section 13267(b) Order for Submittal of Reports, August 8, 2012
3. Spreadsheets of Ash Generator's Site Specific Data Reports
 - i. Eel River Power
 - ii. Roseburg Forest Products
 - iii. DG Fairhaven
 - iv. Blue Lake Power
4. Greenleaf Power, November 7, 2012
5. Agwood Mill & Lumber, rec'd November 16, 2012
6. Shuster's Transportation, November 15, 2012