Appendix G

Pesticide Safety Plan and Pesticide Use Proposals

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Pesticide Safety Plan

Pesticide Application Rates and Safety Plan

The herbicides to be used for site preparation and release are tryclopyr (Garlon 3A and 4), imazapyr (Arsenal), hexazanone (Velpar L), and sulfometuron-methyl (Oust). These herbicides would be applied in several combinations depending upon conditions at the time of site preparation.

A mix of 25% Garlon 3A and 6 oz. per gallon Arsenal would be universally used for injection and may be used for cut stump treatment (See rates below).

Foliar spray would be applied in a mix of 4% Garlon 4 and ½% Arsenal mixed in water. Foliar spray would be applied to shrubs and sprouts at the time of site preparation, and to shrubs, vines, and low leafy vegetation to release desirable regeneration. Where taller, woodier competition develops, Garlon 4 mixed 5 gallons to 25 gallons of mineral oil/surfactant would be used in a streamline treatment.

Where restoration of longleaf is the objective, Velpar L will be used in soil spot treatment. The rate would be two gallons or 4 pounds per acre.

The risks associated with all of the above herbicides have been evaluated in the Final Environmental Impact Statement for Vegetative Management in the Coastal Plain/Piedmont. By applying the rates using application methods and safety considerations specified in the Record of Decision for this document, no significant risk to the human environment, wildlife, or non-target vegetation was found. During injection, cut-stump, and directed spray treatments, the target vegetation absorbs almost all herbicide.

Tryclopyr is not ground active. Imazapyr is ground active, but cut surface treatments enter the stems directly, and the ½% used in hand directed foliar spray has not shown effects on non-target vegetation. Hexazanone is ground active and would be used as a ground spot treatment on sites where longleaf pine is being restored. The Final Environmental Impact Statement for Vegetative Management in the Coastal Plain/Piedmont vegetative prescribes that herbicides would not be ground applied within 30 feet of streams and riparian areas. Additionally, a 30-foot buffer is required for non-target vegetation.

Typically, District coordination provides a 3-chain streamside management zone on either side of perennial streams and a 2-chain streamside management zone for intermittent streams as described in Chapter 1 under “Streamside Management Zones”. This substantially exceeds the coordination requirement established in the Final Environmental Impact Statement for Vegetative Management in the Coastal Plain/Piedmont, which found that applications of up to 6 pounds active ingredients per acre are not likely to have an adverse effect on water and aquatic

life, with a buffer of 30 feet. Given these relationships the following buffers against impacts on water and aquatic species are provided:

Perennial Streams: 198' SMZ + 30' non-target veg. = 228' buffer.

Intermittent Streams: 132' SMZ + 30' non-target veg. = 162' buffer

A site-specific examination of the sites shows that the vegetative components on the site can be controlled by the above herbicides. All soils within the Analysis Unit 22 have a silt, loam, and/or clay component which provides sufficient density and fix or hold herbicides on the site or slow movement through the soil for sufficient time that most of the herbicide not absorbed by vegetation degrades on site. Finer textured soils tend to hold even soluble herbicides to colloid sized particles.

As an example, the Velpar L label provides for increased rates depending upon the percent of organic matter and soil characteristics. Recommended rates nearly double for clay loam soils when compared to sandy loam soils. Injection, stump spray, foliar spraying, and ground spot treatment with herbicide to obtain species control would introduce slightly toxic chemicals to target sites.

All of the above herbicides are Class "A" chemicals, and the methods of applications are addressed Final Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont. Research and technical data reviewed in preparation of the above Environmental Impact Statement and the Material Safety Data Sheets for these herbicides indicate that they have short half-lives and biodegrade through microbial action. Therefore they do not build up between treatments such as site preparation and release.

Also, these herbicides are soluble and do not bioaccumulate in animals or humans. The preparation of the Environmental Impact Statement included risk assessments evaluating actual field applications and personal exposure data. Tests included actual mixed herbicide formulations, which included surfactants and inert ingredients. The applicator exposures were below the standards set for human health.

Based upon this analysis and the use records available, the actual product used can be determined at the time of application based upon season of treatment, species and quantity on site to be controlled, cost, and supply situation. Rates typical of sites similar to those examined for this alternative are:

Cut and Stump Spray Garlon/Arsenal Mix:
.75 gal, 25% Garlon 3A @ 3 pounds/gal = 0.56 pounds/ac
.75 gal, 5% Arsenal @ 4 pounds/gal = 0.15 pounds/ac

Injection:
.5 gal, 25% Garlon 3A @ 3 pounds/gal = 0.38 pounds/ac
.5 gal, 5% Arsenal @ 4 pounds/gal = 0.1 pounds/ac

Foliar Spray w/ Arsenal/Garlon 4:
4 gal, 1.6% Garlon 4 @ 4 pounds/gal = 0.26 pounds/ac

4 gal, 0.25% arsenal @ 4 pounds/gal = 0.04 pounds/ac

Soil Spot Treatment w/ Velpar L
2 gal Velpar L @ 2 pounds/gal = 4 pounds/ac
Herbaceous Weed Control w/ Arsenal and Oust
Arsenal 0.28 oz/gal
Oust 0.14 oz/gal
Apply 1.4 gallons per surface acre for 681 trees per acre.
(Longleaf planted at 681 trees per acre)
Apply 0.6 gallons per surface acre for 258 trees per acre.
(Loblolly planted at 258 trees per acre for pine/hardwood regen.)
Arsenal Rates = 0.01 - 0.025 pounds AI per acre
Oust Rates = 0.005 - 0.012 pounds AI per acre

Streamline w/ Garlon 4:
2 gal, 17% Garlon 4 @ 4 pounds/gal = 1.28 pounds/ac

An evaluation of the above estimated application rates indicates that the highest rate of tryclopyr that would be applied per acre for a single treatment period would be 1.84 pounds active ingredient (AI) per acre. This rate would require two treatments: cut-stump treatment followed by streamline release, and treatments would be separated by a minimum of three years.

The highest rate of imazapyr would be 0.19 pounds per acre for the combined stump spray and foliar spray treatment. The highest rate for Oust is 0.012 pounds per acre. Maximum rates prescribed in the Final Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont are 4 pounds, 0.75 pounds, and 0.3 pounds per acre, respectively. Impacts and risks associated with these maximum rates were considered insignificant in the evaluation completed for the Environmental Impact Statement.

The maximum rate for Velpar L is 6 pounds per acre in the Final Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont (as amended), and the highest rate considered under this analysis is 4 pounds per acre. Therefore, the lower rates on lands and vegetation site-specifically evaluated as suitable for these treatments would also be interpreted as non-significant under the analysis in the Final Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont.