


Memorandum

TO: Directors of District Management  
Waste Program Administrators

FROM: Mike Sole, Director   
Division of Waste Management

DATE: August 16, 2004

SUBJECT: CCA Conversion Guidelines

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On September 24, 2003, EPA published a memo entitled "Options for Drip Pads at Wood Treating Plants Converting from Chromated Copper Arsenate (CCA) Preservative to Preservatives that do not Generate Hazardous Waste." The EPA memo describes three options: (1) complete closure before converting; (2) continued operation under 40 CFR Part 265 Subpart W; and (3) phased closure.

The EPA guidance specifically does not address tanks and ancillary piping and equipment, or particulars of process equipment cleaning and/or replacement. The attached document addresses these issues; provides additional details concerning closure of hazardous waste drip pads under Subpart W; and includes guidance on demonstrating that waste managed on a drip pad is not F035 by virtue of the mixture rule [40 CFR 261.3(a)(2)(iv)].

Facilities that choose EPA's "closure" or "phased closure" option at conversion from use of CCA to other wood treating chemicals must show that they have completed activities outlined in the attached guidance document.

Many wood treating facilities in Florida have indicated their preferred option is to continue operating under Subpart W. As we all know, the State of Florida is particularly dependent on groundwater for all domestic, agricultural and industrial purposes. The karst nature of Florida's geologic environment means that our groundwater resources are exceptionally vulnerable to contamination. Historical waste management practices at wood preserving facilities have led to groundwater contamination. Therefore, the Department is conducting an extensive review of available information about practices and conditions at closed and currently operating wood treating facilities in Florida, and expects to focus resources to ensure that contamination at all such facilities is detected, controlled and ultimately remediated.

Compliance with these guidelines by a wood treating facility shall not affect remedial action requirements or obligations at any facility where environmental contamination is currently known or subsequently discovered, and shall not preclude the Department from commencing or continuing enforcement action based on environmental contamination or regulatory violations.

**STATE OF FLORIDA GUIDELINES FOR CLOSING A DRIP PAD  
UNDER 40 CFR PART 265 SUBPART W**

Facilities that choose EPA's "closure" or "phased closure" option at conversion from use of CCA to other wood treating chemicals must show that they have completed activities outlined in these guidelines. Alternative tasks, methods, procedures or time frames may be approved by the Department, based on site-specific justifications submitted to the Department in writing by a Florida registered professional engineer or geologist using sound professional judgment.

A wood treatment system generally consists of a drip pad, sumps(s), a treatment cylinder, pumps, piping, valves, fittings and storage tank(s). To close a wood treatment system, or to convert a wood treatment system from a process that produces hazardous waste to a process that does not produce hazardous waste, the facility must meet the closure performance standard at 40 CFR 265.445(a): "remove or decontaminate all waste residues, contaminated containment system components, (pads, liners, etc), contaminated sub soils, and structures and equipment contaminated with waste and leakage, and manage them as hazardous waste," using the following guidelines:

1. Remove all waste residues from the tanks, treatment cylinder and ancillary equipment including bottom sludge.
2. Scrub and de-scale the tanks to remove any scaling prior to rinsing, then rinse the tanks and flush the piping to remove the chemical residuals.
3. Decontamination of drip pad and associated collection systems: The drip pad should be thoroughly cleaned and re-sealed prior to monitoring of the treating chemical solution per item #5. Cleaning of the drip pad will include, at a minimum, high-pressure washing. For drip pads with long term usage a more aggressive cleaning technique may need to be employed; it is preferred that the drip pad surface be shot blasted (blast track machine) and then re-sealed.
4. The facility must collect, characterize, manage and dispose of all rinse water and/or shot blasted residues derived from the cleanup of the wood treatment system as F035 hazardous waste, in accordance with hazardous waste regulations, unless the Department, on a case-by-case basis, excludes debris in accordance with 40 CFR 261.3(f) and excludes contaminated environmental media in accordance with the Department's memo dated August 21, 2002. Non-hazardous rinse water or shot blast residue must be managed and disposed of in accordance with state and local requirements
5. F035 waste is described in part in 40 CFR 261.31 as: "Wastewater (except those that have not come into contact with process contaminants), process residuals, preservative dripping, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium." The Department has determined that a CCA treatment system would be cleaned sufficiently such that any liquids that come in contact with the pad would not be viewed as having been "mixed" with F035 waste under the mixture rule [40 CFR 261.3(a)(2)(iv)] if untreated wood treatment waste (i.e. waste "as generated") meets the Universal Treatment Standards (UTS) for F035 constituents set forth in 40 CFR 268.40 and 268.48:

	Wastewaters [milligrams per liter (mg/L)]	Non-wastewaters (mg/L TCLP)
Arsenic (As)	1.4	5.0
Chromium Total (Cr)	2.77	0.60

This determination also applies to wastes which are generated by use of non-CCA chemicals or makeup water that may contain arsenic or chromium as impurities. In other words, as-generated (i.e. untreated) wastes that do not exceed UTS for As and Cr do not meet the F035 listing description in Florida. The facility must notify the Department if it uses or intends to use groundwater from the site as makeup water for the wood treatment process.

The demonstration that the wood treatment waste meets UTS must be based on a technically adequate sampling program, with a minimum of one sample per 55 gallon drum of waste generated, for a sufficient period of time to generate data ensuring that concentrations of As and Cr in the waste are regularly and consistently at or below UTS. The sampling program should continue until the Department agrees that the demonstration has been made. **DURING AND AFTER THE DEMONSTRATION SAMPLING PERIOD, ALL NONWASTEWATERS THAT MEET THESE CRITERIA IF DISPOSED OF IN FLORIDA, MUST BE SENT TO A PERMITTED SOLID WASTE CLASS I LINED LANDFILL WITH A LEAK DETECTION SYSTEM. WASTEWATERS THAT MEET THESE CRITERIA MUST BE MANAGED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL WATER FACILITY PERMITTING, PRETREATMENT, REUSE AND/OR DISCHARGE REQUIREMENTS.**

6. Upon completion of this phase of closure [steps 1 through 5], the facility must submit to the Department a phased closure report including certification, signed by a professional engineer registered in the State of Florida. The phased closure report must demonstrate proper disposal of residues and include all analytical results for steps 1 through 5. The facility must continue to comply with 40 CFR 265.441, 265.443, and 265.444 until certification of phased closure is accepted by the Department.

7. Along with the phased closure report from step 6, the facility must submit a Preliminary Contamination Assessment Plan (PCAP) designed to determine whether contamination from use of CCA or any other hazardous wood treatment chemical (such as boron, creosote or pentachlorophenol) is present at the facility. The facility may make this demonstration by sampling soil, sediment, surface water and groundwater in the areas of greatest expected contamination in the vicinity of the drip pad and other areas of the facility where treatment chemicals may have been released, and showing that such samples contain no contamination above protective levels established for unrestricted exposure. The attached document entitled "Subpart W Preliminary Contamination Assessment Guidelines" may be used as guidance in developing and completing the preliminary assessment.

8. If the preliminary assessment establishes that contamination is present, the facility must implement either (1) a closure plan pursuant to an enforceable remediation order with compliance schedules, or (2) a perimeter monitoring program until the facility ceases wood treatment operations to ensure that contamination does not extend beyond the facility boundaries. The monitoring program shall be implemented pursuant to an enforceable remediation order with compliance schedules and provisions for corrective action, if needed. When the facility ceases wood treatment operations, all contamination at the facility must be addressed pursuant to an enforceable remediation order with compliance schedules. Perimeter Groundwater Monitoring Plan guidance is attached.

9. If the preliminary assessment demonstrates that contamination is not present above cleanup target levels (CTLs) established in Chapter 62-777, Florida Administrative Code (F.A.C.) for unrestricted exposure, and the facility successfully completes steps 1 through 7 of this guidance, closure of a hazardous waste drip pad under 40 CFR 265.445 will be deemed complete through issuance of a Department determination subject to public notice.

10. Continued use of the facility after conversion to a non-hazardous waste producing process, especially use of a drip pad, must be in accordance with applicable environmental requirements, including but not limited to the Department's industrial wastewater discharge and disposal regulations.

## **SUBPART W PRELIMINARY CONTAMINATION ASSESSMENT GUIDELINES**

Facilities that choose EPA's "closure" or "phased closure" option at conversion from use of CCA to other wood treating chemicals must show that they have completed activities outlined in these guidelines. Alternative tasks, methods, procedures, or time frames may be approved by the Department, based on site-specific justifications presented to the Department in writing by a Florida registered professional engineer or geologist using sound professional judgment.

1. Environmental sampling and laboratory analysis shall comply with the quality assurance requirements of Chapter 62-160, Florida Administrative Code (F.A.C.)
2. Facilities shall prepare a Preliminary Contamination Assessment Plan (PCAP) which describes tasks to determine whether soil, groundwater, sediment, or surface water contamination exists as a result of Facility operations. Soil, groundwater and surface water contaminant concentrations shall be compared to cleanup target levels established in Chapter 62-777, F.A.C., and the Department's Sediment Quality Assessment Guidelines shall be used to evaluate potential sediment contamination. The PCAP shall include a time schedule for each task so that all tasks can be completed and a Preliminary Contamination Assessment Report (PCAR) can be submitted to the Department within 120 days of approval of the PCAP by the Department. Applicable portions of the PCAP shall be signed and sealed by a Professional Engineer or Professional Geologist pursuant to Section 403.0877, Florida Statutes (F.S.).
3. The PCAP shall include provisions for the installation and sampling of a minimum of four monitor wells to determine the groundwater quality and flow direction at the site. Proposal of fewer wells, an alternate well configuration, or alternate monitoring devices is subject to Department approval. Provision to sample surface waters, sediments, and/or soils shall be included as necessary.
  - A. One of the wells shall be located in the area suspected of greatest contamination and one well shall be located down gradient of the area suspected of highest contamination.
  - B. One of the wells shall be an unaffected background well.
  - C. Other wells shall be located as required to determine the direction of groundwater flow, and based on potential discharge locations and site specific conditions.
  - D. If there are any production, process or other existing wells at the Facility, the PCAP shall include a provision to sample and analyze groundwater from such wells.
4.
  - A. The analyses for contaminants in surface water, groundwater, soil, and sediment samples, as applicable, shall be performed using the appropriate analytical procedures referenced or listed in Chapter 62-160, F.A.C. The initial analyses of contaminants, including their reaction or degradation products, shall be based on the site history, if adequately known. Where the site history is not adequately known, the initial suite of contaminants shall be the following:
    - (1) priority pollutant metals listed in 40 C.F.R. Part 122, Appendix D, Tables II through IV
    - (2) priority pollutant volatile and semi volatile organic chemicals listed in 40 C.F.R. Part 122, Appendix D, Tables II through IV
  - B. The following analytical methods shall be used:
    - (1) EPA methods 200.7/6010, 200.8/6020, and/or appropriate 200 series or 7000 series methods shall be used for metals;
    - (2) EPA methods 624/8260B and 625/8270C shall be used for volatile and semi volatile organic chemicals. Additionally, for groundwater or surface water samples, all other

organic chemicals, including tentatively identified compounds, with peaks greater than 10 micrograms per liter (ug/l) detected using EPA methods 624/8260B or 625/8270C shall be reported.

C. Proposal of alternate analytical methods is subject to Department approval.

D. For each analytical method used, all the analytes which the method lists as detectable shall be reported, regardless of whether the analyte is included in the parameters listed above and regardless of whether the analyte is detected. All method detection limits must be equal to or less than the applicable cleanup target levels set forth in Chapter 62-777, F.A.C., or a justification must be provided.

5. The PCAP shall include provisions for investigation of the following conditions, as applicable, at the Facility. Investigation may include literature searches, including relevant information developed during environmental assessment and remediation of nearby properties.

A. The presence of soil and sediment contamination at potential discharge locations;

B. The aquifers present beneath the site and their Chapter 62-520, F.A.C., groundwater classification;

C. The presence of surface waters of the State within the property boundary and, if applicable, their Rule 62-302, F.A.C., classification; and

D. The geology and hydrogeology of the site focusing on aquifers and confining units which are present, the potential for movement of contaminants both horizontally and vertically, zones that are likely to be affected, and actual and potential uses of the groundwater as a resource.

6. The PCAP shall contain the following site-specific information;

A. Proposed well installation, construction and development details;

B. Quality assurance information consistent with Chapter 62-160, F.A.C., such as

(1) A description of methods and equipment to be used to quantify soil and sediment contamination;

(2) A description of water sampling methods, including names of sampling personnel, procedures and equipment;

(3) Name of laboratory to be used for analytical work;

(4) The parameters to be analyzed for, the analytical methods to be used and the detection limits of these analytical methods;

C. Site map depicting monitoring well locations and other proposed sampling sites and justification for their selection;

D. A brief site history including a summary of known spills or releases of materials which may be potential pollution sources; and

E. A site map showing past and present treatment facility structures, lumber storage areas, buildings, surface water bodies, storm water drainage systems, and groundwater and surface water discharge locations.

7. The Department shall review the PCAP and provide the Facility with a written response to the proposal. The Facility may request a technical meeting with the Department's hazardous waste regulation section in Tallahassee, at which the details of the PCAP may be agreed upon, including the implementation schedule. The Department will prepare minutes of the meeting (MOM). If agreement is reached on all elements of the PCAP, the MOM along with all information submitted by the Facility in accordance with agreements reached at the meeting will serve as an approved PCAP. If all items are not agreed upon, the MOM will reflect those elements, if any, that are approved and can be implemented, and will identify elements that need further development and a schedule for completion.

8. Within 120 days of PCAP approval or an alternative time limit approved by the Department, the Facility shall submit a PCAR to the Department. Applicable portions of the PCAR shall be signed and sealed by a Professional Engineer or Professional Geologist pursuant to Section 403.0877, F.S. The PCAR shall:

- A. Summarize and analyze all PCAP tasks;
- B. Include, but not be limited to, the following tables and figures:
  - (1) For monitoring wells, a table with well construction details, top of casing elevation, depth to water measurements, and water elevations;
  - (2) A site map showing water elevations, water table contours and the groundwater flow direction for each aquifer monitored for each sampling period;
  - (3) A table with water quality information for all water monitoring devices;
  - (4) Site maps showing contaminant concentrations and contours of the contaminants; and
  - (5) If necessary to portray complex lithology, cross sections depicting the geology of the site at least to the top of the confining unit. When needed, there should be at least one north-to-south cross section and one east-to-west cross section sufficient to show the lithology in the contaminant plume downgradient and in lateral directions.
- C. Include copies of field notes pertaining to field procedures, particularly of data collection procedures;
- D. Specify results and conclusions regarding the objectives of the Preliminary Contamination Assessment;
- E. Provide the following quality assurance data along with the analytical data from all media:
  - (1) dates of sample collection, sample preparation including extraction and sample analysis;
  - (2) the detection limits for these analyses;
  - (3) the results from the analyses of field quality control samples; including field equipments, trip blanks and duplicates;
  - (4) the results from reagent water blanks run on that day (5% of samples run, minimum);
  - (5) the spike and surrogate percent recoveries for the data set;
  - (6) the actual chromatograms, if requested by the Department; and
  - (7) any other QA/QC information the Department deems necessary to evaluate the validity of the submitted data; and
- F. Identify, to the extent possible, the source(s), extent, and concentrations of contaminants, and the existence of any imminent hazards.

9. The Department shall review the PCAR and determine whether it is adequate to meet the objectives of the PCAP.

10. The Facility shall provide notification to the Department within (7) days but not less than 24 hours prior to the installation or sampling of any monitoring wells, and shall allow Department personnel the opportunity to observe installation and sampling and to take split samples. All necessary approvals must be obtained from the appropriate water management district before any wells are installed. If at any time, analyses show that contamination exists at the Facility, the Facility shall notify the Department in writing within 14 days of this finding.

## **PERIMETER GROUNDWATER MONITORING PLAN**

### **Introduction:**

1. This attachment has been prepared as guidance for implementing a Perimeter Groundwater Monitoring Plan (PGMP) at operating wood treating facilities with on-site contamination. The guidance applies to monitoring where groundwater flows through porous media. Adjustments to the guidance may be on a site specific basis where groundwater flow may occur predominately through fractured rock/karst terrain. Alternative tasks, methods, procedures, or time frames may be approved by the Department, based on site-specific justifications presented to the Department in writing by a Florida registered professional engineer or geologist using sound professional judgment.

2. The objectives of the PGMP are to establish that contaminated groundwater will not migrate beyond the Facility boundary. Monitoring will be conducted at regularly scheduled intervals at wells located along the Facility boundary. Monitoring wells must be constructed to monitor potential pathways of contaminant migration.

### **Location of Wells Relative to the Property Line:**

3. The compliance monitoring wells may be located adjacent to the Facility boundary but monitoring wells located within the property and offset by a buffer zone are recommended by the Department. If a buffer zone is not provided, the monitor wells must be sampled on a quarterly basis. The monitor wells must be screened in the transmissive zone(s) where the migration pathway(s) are most likely to occur. Where physical obstructions exist, the monitoring wells should be installed at the most practicable locations down gradient from the source area(s).

4. In addition to the perimeter monitoring wells, the facility must include sufficient onsite monitoring wells in the PGMP such that the groundwater flow direction in the transmissive zone(s) during each sampling event can be determined. If groundwater flow direction has not or cannot be determined, monitoring wells will be required around the entire Facility boundary.

### **Number of Wells:**

5. The number of monitor wells installed and the screened intervals required to monitor contaminant migration near the Facility boundary should be based upon sound professional judgment, considering the following:

- A. The concentration of contaminants in the source area(s);
- B. The approximate areal and vertical extent of the existing groundwater plume(s);
- C. Site specific geological conditions including heterogeneous lithologies and hydraulic conductivities;
- D. Groundwater flow directions and rates;
- E. Estimated longitudinal and transverse dispersivity rates;
- F. Proximity to or presence of sensitive environments or groundwater users;



- G. Steep or variable hydraulic gradient;
- H. Buried pipes, trenches, tanks or other preferential flow pathways.

No less than two perimeter monitor well locations will be required for each contaminant plume in addition to the wells required to determine groundwater flow direction.

**Alternate Groundwater Monitoring Locations:**

6. Alternate locations may be used initially for the PGMP within the interior of the facility property. For example, existing assessment wells may be used along the down gradient edge of stable or slowly migrating plume(s) if the contaminant concentrations do not yet exceed the groundwater cleanup target levels (GCTLs) at that location. GCTLs are found in Chapter 62-777, F.A.C. After the GCTL is exceeded, the monitoring well location may then be moved adjacent to the Facility boundary.

**Monitor Well Construction:**

Guidance for monitoring well construction is given in the reference documents.

**Contaminants to be Monitored, Frequency of Sampling and Quality Assurance Requirements:**

7. The facility must sample and analyze for all COCs identified at concentrations above the GCTL in the assessment phase. All sampling and analysis shall be conducted in accordance with Chapter 62-160, F.A.C. If not sampled quarterly, the monitor well sampling frequency should be selected such that the groundwater contaminants would not migrate from the monitor well location past the property line in the time interval between sampling events. However, the time period between sampling events may not exceed one year.

**PGMP Submittal Requirements:**

8. The PGMP shall either include the following or provide a reference to a source in a document previously submitted to the Department:

A. A site history including a summary of known spills or releases of materials which may be potential or actual pollution source(s) and all of the soil, sediment and groundwater contamination areas delineated during the assessment phase.

B. The aquifers present beneath the site and their Chapter 62-520, F.A.C., groundwater classification.

C. Cross sections depicting the geology of the site at least to the top of the first confining unit. In general there should be at least two geologic cross sections which intersect at approximately 90 degrees.

D. A site map depicting on-site potential sources of contamination, perimeter monitoring well locations or other proposed sampling sites, justification for their selection, monitoring frequency with justification and schedule for installation.

E. Provisions for installation and sampling of perimeter monitor wells to determine migration of contaminated groundwater beyond the Facility boundary, including proposed well construction details, well installation depths, screened intervals and well development procedures.

F. Contaminants (parameters) to be sampled and analyzed, the analytical methods to be used (see requirements in Appendix 1). Proposal of alternate analytical methods is subject to Department approval. For each analytical method used, all the analytes which the method lists as detectable shall be reported, regardless of whether the analyte is included in the contaminant list and regardless of whether the analyte is detected. All method detection limits must be equal to or less than the applicable cleanup target levels set forth in Chapter 62-777, F.A.C., or a justification must be provided.

H. Name of laboratory to be used for analytical work. It must be NELAC accredited.

I. Applicable portions of the PGMP shall be signed and sealed by a Professional Engineer or Professional Geologist pursuant to Section 403.0877, F.S.

9. The Department shall review and approve the PGMP after comments, if any, are adequately addressed.

10. The Facility shall provide notification to the Department within (7) days but not less than (24) hours prior to the installation or sampling of any monitoring wells, and shall allow Department personnel the opportunity to observe installation and sampling procedures and to take split samples. All necessary approvals must be obtained from the appropriate water management district before any wells are installed.

#### **Perimeter Groundwater Monitoring Reports:**

11. The facility must submit a Perimeter Compliance Groundwater Monitoring Report (PGMR) to the Department within 60 days after completion of each monitor well sampling event. The PGMR shall:

A. Include, but not be limited to, the following tables and figures:

- (1) A table with well construction details; top of casing elevation, depth to water measurements, and water elevations;
- (2) A site map showing well locations, water elevations, water table contours and the groundwater flow direction for each aquifer monitoring in each sampling event;
- (3) A table with water quality information for all monitor wells.

B. Include copies of field notes pertaining to field procedures, particularly of data collection procedures;

C. Specify results and conclusions regarding detection of contaminants at the facility perimeter, and recommendations for future activities.

D. Provide the following quality assurance data along with the analytical data from all media:

- (1) Dates of sample collection, sample preparation including extraction and sample analysis;
- (2) Detection limits for these analyses;
- (3) Results from the analyses of field quality control samples; including field equipments, trip blanks and duplicates;
- (4) Results from reagent water blanks run on that day (5% of samples run, minimum);
- (5) The spike and surrogate percent recoveries for the data set;
- (6) The actual chromatograms, if requested by the Department; and
- (7) Any other QA/QC information the Department deems necessary to evaluate validity of the submitted data.

Applicable portions of the PGMR shall be signed and sealed by a Professional Engineer or Professional Geologist pursuant to Section 403.0877, F.S. The initial PGMR must include the location of each well, in degrees, minutes and seconds of latitude and longitude. The elevation of the top of the well casing must be determined by a registered Florida land surveyor. Guidance for monitor well construction is contained in the reference documents.

12. The Department shall review the PGMR and determine whether it is adequate to meet the objectives of the PGMP and continues to demonstrate that the contaminant plume(s) does not extend beyond the Facility boundary.

**References:**

1. Handbook of Suggested Practices for the Design and Installation of Groundwater Monitoring Wells, EPA/600/4-89/034, March 1991.
2. RCRA Groundwater Monitoring: Draft Technical Guidance, EPA/530-R-93-001, November 1992.
3. Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers, ASTM D 5092-90.