

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: International Paper
Facility Address: 235 Post Plant Road, DeRidder, Louisiana 70634
Facility EPA ID #: LAD 008077315

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

If yes – check here and continue with #2 below.

If no – re-evaluate existing data, or

If data are not available skip to #6 and enter “IN” (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of “Current Human Exposures Under Control” EI

A positive “Current Human Exposures Under Control” EI determination (“YE” status code) indicates that there are no “unacceptable” human exposures to “contamination” (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all “contamination” subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The “Current Human Exposures Under Control” EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program’s overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)**

Page 2

2. Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be "contaminated"¹ above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	✓			Creosote Constituents and Pentachlorophenol
Air (indoors) ²		✓		
Surface Soil (e.g., <2 ft)	✓			Creosote Constituents and Pentachlorophenol
Surface Water		✓		
Sediment		✓		
Subsurface Soil (e.g., >2 ft)	✓			Creosote Constituents and Pentachlorophenol
Air (outdoors)		✓		

_____ If no (for all media) – skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

✓_____ If yes (for any media) – continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) – skip to #6 and enter "IN" status code.

Rationale and Reference(s): Note: Site locations are shown on the enclosed figure.

Groundwater:

The area of affected groundwater is derived from the locations of former surface impoundments used before 1983 for separation of creosote and pentachlorophenol from wastewater (impoundments in Waste Management Area B) and for treatment of wastewater (impoundments in Waste Management Area A). The surface impoundments were closed under RCRA interim status and are subjects of the facility's RCRA permitting. The area of affected groundwater extends southwestward and westward from Waste Management Areas A and B. The site contaminants consist of wood preservatives derived from creosote and pentachlorophenol. The principal constituents in the groundwater are the creosote constituents naphthalene, cresols, phenol, and 2,4-dimethylphenol; minor constituents including fluoranthene, benzo(a)anthracene, and chrysene are also present near Waste Management Areas A and B. Pentachlorophenol (< 1 mg/l but greater than the LDEQ RECAP screening standard of 0.001 mg/l) has been detected near Waste Management Area B. The concentrations of naphthalene range from 0.010 mg/l to greater than 1 mg/l and exceed the LDEQ RECAP risk-based groundwater screening standard of 0.010 mg/l. The concentrations of cresol range from 0.010 mg/l to greater than 1 mg/l. A RECAP Standard for cresol has not been promulgated. The concentrations of 2,4-dimethylphenol range from 0.010 mg/l to greater than 1 mg/l and exceed the LDEQ RECAP screening standard of 0.073 mg/l. The concentrations of phenol range from 0.010 mg/l to greater than 1 mg/l and exceed

the LDEQ RECAP screening standard of 0.370 mg/l. Dense non-aqueous phase liquid (DNAPL) consisting of free-phase creosote has been detected near Waste Management Area B and at SWMU E, which is adjacent to Waste Management Area A.

Reference: Semiannual Groundwater Monitoring Report, Third and Fourth Quarters 1998 and Annual Summary Report, International Paper, DeRidder, Louisiana.

Surface Soil:

Areas of affected surface soil have occurred at and in the vicinity of the Treating Area (SWMUs 11, 12, and 13), at SWMU E, and at SWMU F. The surface soil in these areas contains creosote constituents including naphthalene, cresols, anthracene, fluoranthene, and benzo(a)anthracene. The Treating Area has been capped with a RCRA cover in 1999 approved as an interim measure for SWMUs 11, 12, and 13. The area north of the RCRA cover contains surface soils with low concentrations of creosote constituents. This area is fenced and gated and access is restricted. SWMU E was capped in 1990 with a RCRA cover as an interim measure. The covered area is fenced and gated. Affected surface soil in SWMU F was excavated and collected in a soil pile. Affected surface soil north of the soil pile was not excavated. *Affected surface soil will be addressed in the post-closure permit. No proposals have been approved to date concerning surface soil pile.*

Subsurface Soil:

Affected subsurface soil occurs in a limited area in the vicinity of the Treating Area and contains creosote constituents including naphthalene, cresols, 2,4-dimethylphenol, phenanthrene, pyrene, fluoranthene, and other minor constituents and pentachlorophenol. The concentrations of constituents in soil decrease downward to trace levels or are not detected at the depth of the water table (approximately 20 to 22 feet below land surface). The area with constituents in subsurface soil has been capped with a RCRA cover in 1999 approved as an interim measure for the SWMUs in the Treating Area.

References: Interim Measures Plan/Closure Plan, Treating Area and Drip Pad, International Paper, DeRidder, Louisiana

Revised Interim Corrective Measures Plan, SWMU F, International Paper, DeRidder, Louisiana

Footnotes:

¹ "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Current Human Exposures Under Control
 Environmental Indicator (EI) RCRIS code (CA725)
 Page 3

3. Are there complete pathways between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential Human Receptors (Under Current Conditions)

<u>"Contaminated" Media</u>	<u>Residents</u>	<u>Workers</u>	<u>Day-Care</u>	<u>Construction</u>	<u>Trespassers</u>	<u>Recreation</u>	<u>Food³</u>
Groundwater	<u>No</u>	<u>No</u>	<u>No</u>	<u>Yes</u>			<u>No</u>
Soil (surface, e.g., <2 ft)	<u>No</u>	<u>No</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>No</u>	<u>No</u>
Soil (subsurface, e.g., > 2 ft)				<u>Yes</u>			<u>No</u>

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.
2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

- ___ If no (pathways are not complete for any contaminated media-receptor combination) – skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).
- ✓ If yes (pathways are complete for any "Contaminated" Media – Human Receptor combination) – continue after providing supporting explanation.
- ___ If unknown (for any "Contaminated" Media – Human Receptor combination) – skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Potential exposure pathways could occur for construction worker receptors. Construction workers could be exposed to affected groundwater, surface soil, and subsurface soil at exposure points within the facility if intrusive construction activities were to occur. Exposure routes for construction workers would consist of inhalation, ingestion, and dermal contact. The probability of intrusive construction activity at the site is low due to the closure of the site manufacturing facilities in September 1997.

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 4

4. Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be "significant"⁴ (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

- If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) – skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."
- If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) – continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."
- If unknown (for any complete pathway) – skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Potential exposures to construction worker receptors are not reasonably expected to be significant, principally due to low frequency and duration of exposures. There is a low probability of intrusive construction activities at the site due to the closure of the site manufacturing facilities in September 1997.

Reference: Semiannual Groundwater Monitoring Report, Third and Fourth Quarters, 1998 and Annual Summary Report, International Paper, DeRidder, Louisiana.

⁴ If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 5

5. Can the "significant" exposures (identified in #4) be shown to be within acceptable limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable") - continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 6

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

YE – Yes, "Current Human Exposure Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the International Paper facility, EPA ID # LAD 008077315, located at DeRidder, Louisiana under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

NO – "Current Human Exposures" are NOT "Under Control."

IN – More information is needed to make a determination.

Completed by (signature) James Courcier Date 12/30/99
(print) JAMES COURCIER
(title) Geologist

Supervisor (signature) LB Date 6/9/04
(print) Lady Brumby
(title) Envl Scientist
(EPA Region ~~08~~) 690-1

Locations where References may be found:

All project reports have been submitted to the Louisiana Department of Environmental Quality, Office of Waste Services and are maintained at the International Paper site (235 Post Plant Road, DeRidder, Louisiana 70634).

Contact telephone and e-mail numbers:

(name) Cynthia J. Gwinn
(phone #) 972-669-3342
(e-mail) cynthia.gwinn@ipaper.com

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA 750)

Migration of Contaminated Groundwater Under Control

Facility Name: International Paper
Facility Address: 235 Post Plant Road, DeRidder, Louisiana 70634
Facility EPA ID #: LAD 008077315

1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

- If yes – check here and continue with #2 below.
 If no – re-evaluate existing data, or
 If data are not available, skip to #8 and enter “IN” (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of “Migration of Contaminated Groundwater Under Control” EI

A positive “Migration of Contaminated Groundwater Under Control” EI determination (“YE” status code) indicates that the migration of “contaminated” groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original “area of contaminated groundwater” (for all groundwater “contamination” subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The “Migration of Contaminated Groundwater Under Control” EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 2

2. Is groundwater known or reasonably suspected to be "contaminated"¹ above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

If yes – continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

If no – skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

If unknown – skip to #8 and enter "IN" status code.

Rationale and Reference(s):

Note: Site locations are shown on the enclosed figure.

The area of affected groundwater is derived from the locations of former surface impoundments used before 1983 for separation of creosote and pentachlorophenol from wastewater (impoundments in Waste Management Area B) and for treatment of wastewater (impoundments in Waste Management Area A). The surface impoundments were closed under RCRA interim status and are subjects of the facility's RCRA permitting. The area of affected groundwater extends southwestward and westward from Waste Management Areas A and B. The site contaminants consist of wood preservatives derived from creosote and pentachlorophenol. The principal constituents in the groundwater are the creosote constituents naphthalene, cresols, phenol, and 2,4-dimethylphenol; minor constituents including fluoranthene, benzo(a)anthracene, and chrysene are also present near Waste Management Areas A and B. Pentachlorophenol (< 1 mg/l but greater than the LDEQ RECAP screening standard of 0.001mg/l) has been detected near Waste Management Area B. A RECAP Standard for cresol has not been promulgated. The concentrations of naphthalene range from 0.010 mg/l to greater than 1 mg/l and exceed the LDEQ RECAP risk-based groundwater screening standard of 0.010 mg/l. The concentrations of cresol range from 0.010 mg/l to greater than 1 mg/l. A RECAP Standard for cresol has not been promulgated. The concentrations of 2,4-dimethylphenol range from 0.010 mg/l to greater than 1 mg/l and exceed the LDEQ RECAP screening standard of 0.073 mg/l. The concentrations of phenol range from 0.010 mg/l to greater than 1 mg/l and exceed the LDEQ RECAP screening standard of 0.370 mg/l.

Reference: Semiannual Groundwater Monitoring Report, Third and Fourth Quarters 1998 and Annual Summary Report, International Paper, DeRidder, Louisiana.

Footnotes:

¹ "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 3

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"² as defined by the monitoring locations designated at the time of this determination)?

If yes – continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"²).

If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"²) – skip to #8 and enter "NO" status code, after providing an explanation.

If unknown – skip to #8 and enter "IN" status code.

Rationale and Reference(s):

Migration of affected groundwater has been stabilized. International Paper implemented a Corrective Action Program in 1987 including groundwater extraction with recovery wells and groundwater treatment. The recovery pumping has been adjusted to achieve a closed cone of depression in the hydraulic head distribution in the vicinity of the downgradient south property boundary of the facility. Since 1992, constituent concentrations have decreased to below the detection limit (0.010 mg/l) in off-site monitoring wells, and constituent concentrations in monitoring wells in the vicinity of the property boundary have remained stable. Natural attenuation processes, including biodegradation and dispersion, also are contributing to groundwater stabilization at the site. Geochemical analyses have shown that the site groundwater is anaerobic and that alternate electron acceptors including ferric iron and sulfate are being utilized by degradation reactions within the area of affected groundwater.

References: Semiannual Groundwater Monitoring Report, Third and Fourth Quarters 1998 and Annual Summary Report, International Paper, DeRidder, Louisiana.

Simms, M.A., B.C. Brister, and C.J. Stuart, 1998, Anaerobic Natural Attenuation of Creosote Constituents in Louisiana Groundwater, First International Conference in Remediation of Chlorinated and Recalcitrant Compounds, Battelle Press.

² "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 4

4. Does "contaminated" groundwater discharge into surface water bodies?

_____ If yes – continue after identifying potentially affected surface water bodies.

If no – skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown – skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The area of affected groundwater does not discharge into surface water bodies. Downgradient of Waste Management Area B, the area of affected groundwater is located to the north and west of a stream valley referred to as the Old Drainage Area and designated as SWMU F. This stream is an unnamed tributary of Palmetto Creek, which flows southward across the facility's south property boundary and joins Palmetto Creek approximately 1 ½ miles to the south. Palmetto Creek is one of the headwaters tributaries of Bundick Creek (Water Body Code Number 030506). The direction of groundwater flow is controlled by topography and in the area of affected groundwater, the direction of groundwater flow is toward the lower reaches of this stream valley. The area of affected groundwater is not located in the area of this stream, as shown by monitoring wells DA-24, DA-38, DB-38, DA-39, DB-39, and DB-40. These wells are located adjacent to the stream and are sampled and analyzed on a quarterly basis. No constituents are detected in these wells.

No surface water bodies are located along the remainder of the perimeter of the area of affected groundwater. The surface drainage features along the west and northwest perimeter of the facility consist of shallow stormwater ditches and channels that are not known to receive base flow from groundwater.

References: U. S Geological Survey Topographic Map, DeRidder, Louisiana, 7½-minute series, 1994.

Semiannual Groundwater Monitoring Report, Third and Fourth Quarter 1998 and Annual Summary Report, International Paper, DeRidder, Louisiana.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 5

5. Is the discharge of "contaminated" groundwater into surface water likely to be "insignificant" (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

_____ If yes – skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no – (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown – enter "IN" status code in #8.

Rationale and Reference(s):

³ As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 6

6. Can the discharge of "contaminated" groundwater into surface water be shown to be "currently acceptable" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

_____ If yes – continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no – (the discharge of "contaminated" groundwater can not be shown to be "currently acceptable") – skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown – skip to #8 and enter "IN" status code.

Rationale and Reference(s):

⁴ Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵ The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 7

7. Will groundwater monitoring / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

If yes – continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

If no – enter "NO" status code in #8.

If unknown – enter "IN" status code in #8.

Rationale and Reference(s):

Groundwater monitoring is ongoing to verify that the affected groundwater has remained within the horizontal dimensions of the "existing area of contaminated groundwater." At the present time, groundwater monitoring is conducted quarterly using 28 monitoring wells. These include monitoring wells DA-23, DA-24, DB-25, DB-26, DB-27, DB-28, DA-29, DB-29, DB-35, DB-37, DA-38, DB-38, DA-39, DB-39, DB-40, DB-42, DB-43, and DB-44 which define the boundaries of the affected area. This monitoring program will continue with minor modifications after the final RCRA permit for the site is granted.

Reference: Semiannual Groundwater Monitoring Report, Third and Fourth Quarters 1998 and Annual Summary Report, International Paper, DeRidder, Louisiana.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 8

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

YE – Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the International Paper facility, EPA ID #008077315, located at DeRidder, Louisiana. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater". This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

NO – Unacceptable migration of contaminated groundwater is observed or expected.

IN – More information is needed to make a determination.

Completed by

(signature) James Courcier
(print) JAMES COURCIER
(title) Ecologist

Date 12/30/99

~~Supervisor~~

(signature) WV
(print) Wally Brimley
(title) Envl Scientist
(EPA Region or ~~State~~) 6 PD-M

Date 6/9/04

Locations where References may be found:

All project reports have been submitted to the Louisiana Department of Environmental Quality, Office of Waste Services and are maintained at the International Paper site (235 Post Plant Road, DeRidder, Louisiana 70634).

Contact telephone and e-mail numbers:

(name) Cynthia J. Gwinn
(phone #) 972-669-3342
(e-mail) cynthia.gwinn@ipaper.com