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March 8, 2005

Mr. Richard Monteith
Air Protection Branch
Georgia Environmental Protection Division
4244 International Parkway, Suite 120
Atlanta, GA 30354

Mr. Stanley Krivo
Regional Modeler
U.S. Environmental Protection Agency
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960

RE: Norbord Georgia, Inc. – Cordele OSB Mill (Crisp County)
AIRS Facility 13-081-0054
Title V Modification/Prevention of Significant Deterioration Application No. 15812
Alternative Dispersion Modeling Request

Dear Mr. Monteith and Mr. Krivo:

Norbord Georgia, Inc. (Norbord) operates an oriented strandboard (OSB) manufacturing facility located near Cordele, Georgia, in Crisp County. Trinity Consultants (Trinity) and Norbord prepared and submitted a construction permit and Title V modification application on November 8, 2004, for a proposed expansion of the Cordele OSB Mill. Because air emissions increases associated with this expansion exceed PSD thresholds for some pollutants, the project is subject to New Source Review for air quality impacts under the Prevention of Significant Deterioration (PSD) program, which specifically requires Best Available Control Technology (BACT) and air quality analyses as administered by the Georgia Environmental Protection Division (EPD) and Georgia's *Rules for Air Quality Control* (GRAQC) (Revised, January 2005).

The Class II air quality analyses prepared to support the PSD permit application were conducted using the ISC-PRIME dispersion model and demonstrated that the proposed project would neither cause nor contribute to an exceedance of an applicable air quality standard. These analyses were presented in the initial permit application and in an updated report submitted on February 14, 2005. Trinity initially proposed the use of ISC-PRIME in a modeling protocol submitted to Georgia EPD on November 8, 2004, which was generally approved (including the use of ISC-PRIME) in comments provided by Mr. Jim Stogner of Georgia EPD on November 30, 2004. Trinity and Norbord's permit application included a model performance analysis to demonstrate the suitability of the ISC-PRIME model and its modeled impacts compared to ISCST3 as applied to the proposed project. This analysis was described in Section 6.2.1 and Appendix E of the initial permit application.

In the course of its review of the PSD permit application, Georgia EPD has requested that the comparative model analysis be submitted under separate cover to Georgia EPD and U.S. EPA Region 4 to meet the requirements of Section 3.2 of the *Guideline on Air Quality Models* (40 CFR Part 51, Appendix W). This letter presents a comparative analysis of ISC-PRIME and ISCST3 prepared using the same methodology presented in Appendix E of the November 2004 initial permit application and using the updated model input data as presented in the February 2005 model update. These analyses are provided on the enclosed CD-ROM for your review.

ALTERNATIVE MODEL GUIDELINES

Section 3.2.2(a) of the *Guideline* states that:

> *Where the Regional Administrator finds that an alternative model is more appropriate than a preferred model, that model may be used subject to the recommendations of this subsection. This finding will normally result from a determination that (1) a preferred air quality model is not appropriate for the particular application; or (2) a more appropriate model or analytical procedure is available and applicable.*

Trinity and Norbord's analysis utilized ISC-PRIME instead of ISCST3 following condition (2) of the preceding statement, since ISC-PRIME is a more suitable model that has been thoroughly evaluated by the U.S. EPA. Section 3.2.2(b) of the *Guideline* provides three mutually exclusive conditions for the use of an alternative model:

> *(1) If a demonstration can be made that the model produces concentration estimates equivalent to the estimates obtained using a preferred model;*
> *(2) if a statistical performance evaluation has been conducted using measured air quality data and the results of that evaluation indicate the alternative model performs better for the given application than a comparable model in Appendix A; or*
> *(3) if the preferred model is less appropriate for the specific application, or there is no preferred model.*
>
> *Any one of these three separate conditions may make use of an alternative model acceptable. Some known alternative models* [including ISC-PRIME] *that are applicable for selected situations are listed on EPA's SCRAM Internet Web site (subsection 2.3).*

Trinity and Norbord performed the PSD air quality analyses using ISC-PRIME following conditions (2) and (3) of the preceding criteria since U.S. EPA has conducted extensive analyses of ISC-PRIME and its suitability for regulatory modeling. The *Guideline* establishes five criteria for judging an alternative model as being more appropriate for a specific application:

> *i. The model has received a scientific peer review;*
> *ii. The model can be demonstrated to be applicable to the problem on a theoretical basis;*
> *iii. The data bases which are necessary to perform the analysis are available and adequate;*
> *iv. Appropriate performance evaluations of the model have shown that the model is not biased toward underestimates; and*
> *v. A protocol on methods and procedures to be followed has been established.*

The U.S. EPA, its contractors, and members of the modeling community have conducted numerous studies showing the ISC-PRIME satisfies these criteria by demonstrating that ISC-PRIME is a more appropriate model in applications where building downwash is important. The following studies are representative of these analyses, the first of which serves as a benchmark that demonstrates the performance of the PRIME algorithms coupled with the ISC dispersion model:

- Schulman, L.L., D.G. Strimaitis, and J.S. Scire, "Development and Evaluation of the PRIME Plume Rise and Building Downwash Model". *J. Air & Waste Manage. Assoc. Volume* 50, pp. 378-390, March 2000.
- Paine, R.J. and F. Lew, 1997. Results of the Independent Evaluation of ISCST3 and ISC–PRIME. Prepared for the Electric Power Research Institute, Palo Alto, CA. NTIS No. PB 98–156524.
- U.S. EPA Staff Report (Draft), *Consequences Analysis of Using ISC-PRIME Over the Industrial Source Complex Short Term Model*, April 1998.

Overview of ISC-PRIME and Application to Norbord's Cordele OSB Mill

On April 21, 2000, the U.S. EPA proposed[1] that ISC-PRIME be included as a regulatory guideline model in 40 CFR Part 51, Appendix W. U.S. EPA has proposed to ultimately replace ISCST3 with AERMOD, a next generation model that includes the PRIME algorithms. U.S. EPA Region 4 considers the use of ISC-PRIME for regulatory permitting purposes prior to its formal acceptance as a guideline model acceptable on a case-by-case basis.[2] Notwithstanding the building downwash algorithms, AERMOD would be preferred over ISCST3 in a situation where complex terrain is of particular concern. For this analysis of the Cordele OSB Mill expansion project in middle Georgia, complex terrain is not a concern in the area immediately surrounding the facility, and therefore the use of ISC-PRIME is suitable and preferred in anticipation of the final release of AERMOD due to the significance of building downwash.

The primary improvements associated with the PRIME dispersion model are in the algorithms that predict pollutant concentrations for plumes that are affected by building downwash. Numerous comparative studies (including a draft consequence analysis prepared by the U.S. EPA) suggest that ISC-PRIME offers a considerably more accurate representation of building downwash effects.[3] Specifically, it improves upon the downwash algorithms of the ISCST3 model in which a stack was assumed to be located centrally adjacent to the lee side of the dominant downwash structure even though the stack may actually be located upwind, downwind

[1] 61 FR 21,506, April 21, 2000.

[2] Letter from Mr. R. Douglas Neeley (U.S. EPA Region 4) to Mr. A. A. Linero (Florida Department of Environmental Protection) dated November 4, 1999, pursuant to Section 3.2 of 40 CFR Part 51, Appendix W.

[3] *See*, for example, Schulman, L.L., D.G. Strimaitis, and J.S. Scire, "Development and Evaluation of the PRIME Plume Rise and Building Downwash Model". *J. Air & Waste Manage. Assoc. Volume* 50, pp. 378-390, March 2000.

and up to five building heights away, and/or laterally displaced, from the structure. In other words, even if a stack were located a significant distance away from a structure, ISCST3 would predict the downwash influence as if the stack is located directly adjacent to the structure. ISC-PRIME improves upon these assumptions by having the ability to model streamlines in the downwind wake cavity and by employing an enhanced numerical simulation of the plume mass, buoyant energy, and momentum. As a result the plume is modeled throughout the cavity, near-wake, and far-wake regions and the source-structure relationship is more accurately represented.

The location of emission sources and structures at the Cordele OSB Mill are illustrated in Figure A-1 in the attachment to this letter (Figure E-2 of the original permit application). The existing WESP exhaust stack (PS01) and the new Dryer RTO stack (S201), from which a significant fraction of facility-wide emissions emanate, lie within wake region (from 53 meters to 178 meters downwind) of the main plant building at approximately 85 meters and 158 meters from the building. This distance is equivalent to 4.9*L* and 9.2*L* or 4.9 times and 9.2 times the height of the main building, respectively. Because the separation distance is less than 5*L* for the existing WESP, the ISCST3 model would apply building downwash assuming the stack were located directly adjacent to the building, when in fact there is nearly the maximum separation distance at which downwash is considered in the model. A distance greater than 5*L* separates the new Dryer RTO stack, such that the model presumes there is no downwash effect for emissions from this source. The remaining emission points, many of which are baghouses with unfavorable dispersion characteristics, are located adjacent to the main production building where the downwash effect is important. Figures 1 and 2 depict the three dimensional view of the Cordele OSB Mill from two vantage points to illustrate the relationships of the stacks and structures. The existing and new stacks with the majority of emissions are denoted in these figures.

Table 5 at the end of this discussion summarizes the output from the BPIP-PRIME program, which computes the downwind (XBADJ) and lateral (YBADJ) displacement of each source from the windward midpoint of the dominant building tier. Whereas ISCST3 considers the building downwash effects only as a function of the building height and width, ISC-PRIME also considers the building length and XBADJ and YBADJ to compute downwash effects. This formulation is a significant difference between the two models' representation of downwash effects, especially for facilities such as the Cordele OSB Mill where several stacks are considerably displaced from buildings.

FIGURE 1. THREE-DIMENSIONAL VIEW OF THE CORDELE OSB MILL FROM THE SOUTHEAST

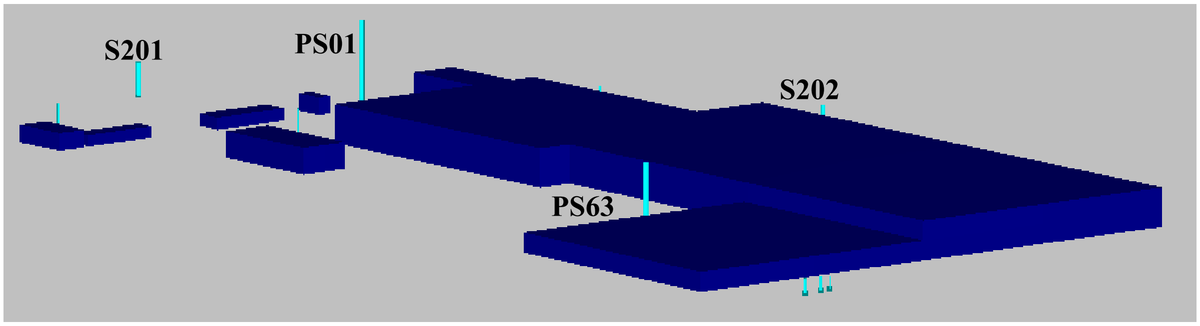
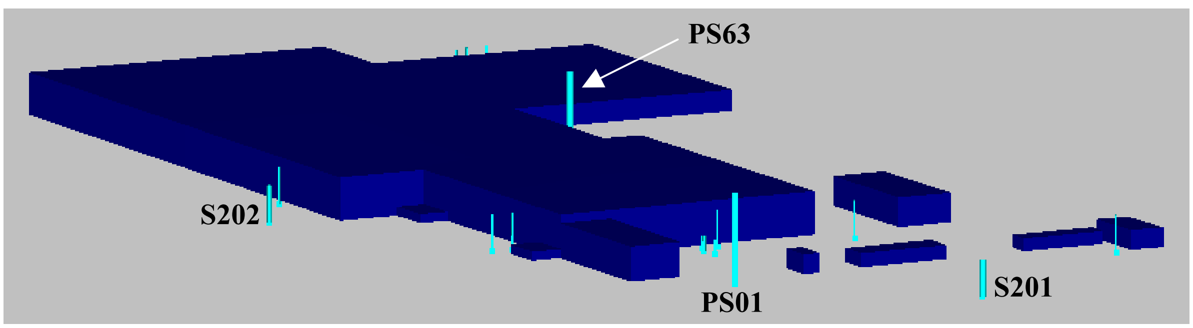


FIGURE 2. THREE-DIMENSIONAL VIEW OF THE CORDELE OSB MILL FROM THE NORTHWEST



For the PSD modeling analyses, the direction-specific building dimensions used as input to the ISC-PRIME model were calculated using the *BREEZE®-AIR* software, developed by Trinity Consultants. This software incorporates the algorithms of the U.S. EPA-sanctioned Building Profile Input Program (BPIP) (version 95086), which has been adapted to incorporate the PRIME downwash algorithms and released by the U.S. EPA as "BPIPPRM".[4] BPIPPRM is designed to incorporate the concepts and procedures expressed in the GEP Technical Support document, the Building Downwash Guidance document, and other related documents,[5] while incorporating the enhancements to improve prediction of ambient impacts in building cavities and wake regions. Previously referenced comparison studies have shown that ISC-PRIME induces no biases to

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[4] After the analyses for this project were initiated, U.S. EPA issued an updated BPIP-PRIME executable Version 04274 on September 30, 2004. Trinity has compared the BPIP-PRIME output parameters to confirm that there are no substantive differences between the old and new downwash parameters used in this analyses.

[5] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) (Revised),* Research Triangle Park, North Carolina, EPA 450/4-80-023R, June 1985.

over- or under-predict ambient concentrations outside of the wake and cavity regions when downwash is not important.

Two comparison analyses were prepared to demonstrate the differences in the predicted ambient impacts by ISC-PRIME and ISCST3. The first analysis shows the magnitude by which ISCST3 predicts higher impacts compared to ISC-PRIME. The second analysis demonstrates that when downwash is disabled from the model, ISCST3 and ISC-PRIME each predict an identical ambient impact in magnitude and location. New runs were prepared to model the proposed configuration of the facility with an arbitrary emission rate (one gram per second) emitted from each stack to compare ISC-PRIME and ISCST3. ***Note that this emission rate is not associated with actual emissions of any pollutant from the Cordele OSB Mill, but was chosen only to demonstrate the comparative impacts.*** Comparative analyses were performed for the five-year meteorological data set used in the updated PSD analyses (i.e., Macon/Centreville 1974-1978).

Tables 1 and 2 present the results of the comparative analyses for a short-term averaging period (24-hours) and a long-term averaging period (annual). The first comparative analysis demonstrates that ISC-PRIME predicts lower impacts than ISCST3 as a result of the ISC-PRIME downwash algorithms correctly accounting for the plume rise effects. For the 24-hour averaging period, the overall maximum impact from all sources predicted by ISC-PRIME was an average of 58% of the overall maximum impact predicted by ISCST3. For the annual averaging period, the overall maximum impact from all sources predicted by ISC-PRIME was an average of 72% of the overall maximum impact predicted by ISCST3. The location of the peak impacts is nearly the same in all cases, suggesting that the difference in magnitude of the peak impact is due solely to the over-representation of the building downwash effects for sources that are displaced from the building. The sources are represented with the separation distance in ISC-PRIME, whereas they are assumed to be immediately adjacent to the building in ISCST3.

TABLE 1. COMPARATIVE ANALYSIS RESULTS WITH DOWNWASH ENABLED
24-HOUR AVERAGING PERIOD

Model Setting	Averaging Period	Met Year	UTM East (km)	UTM North (km)	ISC-PRIME (μg/m^3)	UTM East (km)	UTM North (km)	ISCST3 (μg/m^3)	ISC-PRIME/ ISCST3
Downwash Enabled	24-hour	1974	235.700	3,539.500	245.3	235.700	3,539.500	422.6	0.58
		1975	235.700	3,539.500	301.4	235.800	3,539.500	425.7	0.71
		1976	235.700	3,539.500	345.0	235.700	3,539.500	589.5	0.59
		1977	235.700	3,539.500	382.5	235.700	3,539.500	520.4	0.74
		1978	235.700	3,539.500	242.5	235.600	3,539.500	408.5	0.59
		Maximum	235.700	3,539.500	382.5	235.700	3,539.500	589.5	0.65

TABLE 2. COMPARATIVE ANALYSIS RESULTS WITH DOWNWASH ENABLED ANNUAL AVERAGING PERIOD

Model Setting	Averaging Period	Met Year	UTM East (km)	UTM North (km)	ISC-PRIME (μg/m³)	UTM East (km)	UTM North (km)	ISCST3 (μg/m³)	ISC-PRIME/ ISCST3
Downwash Enabled	Annual	1974	235.700	3,539.500	52.4	235.700	3,539.500	72.2	0.73
		1975	235.700	3,539.500	51.7	235.600	3,539.500	71.6	0.72
		1976	235.700	3,539.500	57.2	235.600	3,539.500	78.9	0.73
		1977	235.700	3,539.500	48.2	235.600	3,539.500	68.7	0.70
		1978	235.700	3,539.500	49.2	235.700	3,539.500	67.0	0.74
		Maximum	235.700	3,539.500	57.2	235.600	3,539.500	78.9	0.73

The second comparative analysis demonstrates that the two models predict the same ambient impacts when downwash is disabled from the models. These results, summarized in Tables 3 and 4, were obtained by simply removing the downwash data block from the ISCST3 and ISC-PRIME input files. This analysis demonstrates that differences between ISC-PRIME and ISCST3 are limited to improvements in the downwash algorithms and buoyant plume rise simulation and the models otherwise perform identically.

TABLE 3. COMPARATIVE ANALYSIS RESULTS WITH DOWNWASH DISABLED 24-HOUR AVERAGING PERIOD

Model Setting	Averaging Period	Met Year	UTM East (km)	UTM North (km)	ISC-PRIME (μg/m³)	UTM East (km)	UTM North (km)	ISCST3 (μg/m³)	ISC-PRIME/ ISCST3
Downwash Disabled	24-hour	1974	235.600	3,539.500	269.5	235.700	3,539.500	269.5	1.00
		1975	235.700	3,539.500	352.3	235.700	3,539.500	352.4	1.00
		1976	235.800	3,539.400	358.4	235.800	3,539.400	358.3	1.00
		1977	235.700	3,539.500	418.0	235.700	3,539.500	417.8	1.00
		1978	235.700	3,539.500	316.9	235.700	3,539.500	317.1	1.00
		Maximum	235.700	3,539.500	418.0	235.700	3,539.500	417.8	1.00

TABLE 4. COMPARATIVE ANALYSIS RESULTS WITH DOWNWASH DISABLED ANNUAL AVERAGING PERIOD

Model Setting	Averaging Period	Met Year	UTM East (km)	UTM North (km)	ISC-PRIME (μg/m³)	UTM East (km)	UTM North (km)	ISCST3 (μg/m³)	ISC-PRIME/ ISCST3
Downwash Disabled	Annual	1974	235.700	3,539.500	54.1	235.700	3,539.500	54.1	1.00
		1975	235.700	3,539.500	52.8	235.700	3,539.500	52.8	1.00
		1976	235.700	3,539.500	59.7	235.700	3,539.500	59.7	1.00
		1977	235.700	3,539.500	52.4	235.700	3,539.500	52.4	1.00
		1978	235.800	3,539.500	52.6	235.800	3,539.500	52.6	1.00
		Maximum	235.700	3,539.500	59.7	235.700	3,539.500	59.7	1.00

TABLE 5. SUMMARY OF DOWNWIND (XBADJ) AND LATERAL (YBADJ) STACK DISPLACEMENTS EVALUATED IN THE ISC-PRIME MODEL

Source	Flow Vector	XBADJ (m)	YBADJ (m)	Flow Vector	XBADJ (m)	YBADJ (m)	Flow Vector	XBADJ (m)	YBADJ (m)
PS01	10	-43.17	-8.24	130	0.00	0.00	250	-87.31	13.49
	20	0.00	0.00	140	0.00	0.00	260	-463.57	142.62
	30	0.00	0.00	150	0.00	0.00	270	-483.75	96.77
	40	0.00	0.00	160	0.00	0.00	280	-489.23	38.34
	50	23.07	-32.09	170	0.00	0.00	290	-485.43	-9.66
	60	24.92	-23.14	180	0.00	0.00	300	-485.13	-58.75
	70	26.01	-13.49	190	0.00	0.00	310	-470.09	-106.06
	80	26.32	-3.43	200	0.00	0.00	320	-440.77	-150.14
	90	25.82	6.74	210	0.00	0.00	330	-398.06	-189.66
	100	24.54	16.70	220	0.00	0.00	340	0.00	0.00
	110	0.00	0.00	230	-74.34	32.09	350	-45.70	5.62
	120	0.00	0.00	240	-82.07	23.14	360	-45.12	-1.33
PS03	10	-91.58	-213.16	130	-11.86	100.62	250	-387.04	120.65
	20	0.00	0.00	140	-21.88	131.75	260	-411.13	88.57
	30	-52.68	-204.36	150	-31.23	158.87	270	-422.72	52.65
	40	-47.66	-191.56	160	-39.63	181.16	280	-421.47	5.49
	50	-41.18	-172.93	170	-46.83	197.95	290	-412.99	-30.24
	60	-33.46	-149.05	180	-54.91	208.73	300	-410.22	-66.44
	70	-24.72	-120.65	190	-80.60	213.16	310	-394.98	-100.62
	80	-15.23	-88.57	200	-59.45	-20.28	320	-367.75	-131.75
	90	-5.27	-52.65	210	-185.57	204.36	330	-329.34	-158.87
	100	4.85	-5.49	220	-248.91	191.56	340	-280.92	-181.16
	110	8.93	30.24	230	-304.68	172.93	350	-223.97	-197.95
	120	-1.49	66.44	240	-351.20	149.05	360	-160.21	-208.73
PS04	10	0.00	0.00	130	-3.40	104.09	250	-394.28	126.24
	20	0.00	0.00	140	-14.15	136.63	260	-419.22	92.82
	30	-50.74	-213.30	150	-24.47	165.02	270	-431.43	55.43
	40	-44.19	-200.02	160	-34.04	188.40	280	-430.53	6.72
	50	-36.30	-180.66	170	-42.58	206.05	290	-422.12	-30.61
	60	-27.31	-155.82	180	-52.13	217.44	300	-419.15	-68.39
	70	-17.48	-126.24	190	-63.47	-3.00	310	-403.44	-104.09
	80	-7.13	-92.82	200	-59.81	-11.15	320	-375.47	-136.63
	90	3.44	-55.43	210	-187.52	213.30	330	-336.10	-165.02
	100	13.91	-6.72	220	-252.38	200.02	340	-286.51	-188.40
	110	18.07	30.61	230	-309.57	180.66	350	-228.22	-206.05
	120	7.44	68.39	240	-357.35	155.82	360	-162.99	-217.44
PS10	10	-89.94	-208.85	130	-16.42	99.89	250	-384.13	117.06
	20	-55.23	-206.43	140	-26.24	130.24	260	-407.64	85.55
	30	-52.61	-199.75	150	-35.26	156.62	270	-418.76	50.28
	40	-48.39	-187.00	160	-43.21	178.25	280	-417.16	3.85
	50	-42.69	-168.57	170	-49.85	194.46	290	-408.46	-31.12
	60	-35.70	-145.02	180	-57.28	204.77	300	-405.60	-66.52
	70	-27.63	-117.06	190	-82.25	208.85	310	-390.42	-99.89
	80	-18.71	-85.55	200	-117.47	206.43	320	-363.38	-130.24
	90	-9.23	-50.28	210	-185.64	199.75	330	-325.30	-156.62
	100	0.53	-3.85	220	-248.18	187.00	340	-277.34	-178.25
	110	4.40	31.12	230	-303.17	168.57	350	-220.95	-194.46
	120	-6.10	66.52	240	-348.95	145.02	360	-157.84	-204.77
PS11	10	0.00	0.00	130	-177.94	-8.99	250	-32.47	-78.48
	20	0.00	0.00	140	-179.47	-25.54	260	-16.26	-67.54
	30	0.00	0.00	150	-175.54	-41.31	270	0.44	-54.54
	40	0.00	0.00	160	-166.28	-55.82	280	17.13	-39.89
	50	0.00	0.00	170	-151.96	-68.65	290	0.00	0.00
	60	-130.30	87.03	180	-133.03	-79.38	300	0.00	0.00
	70	-144.12	78.48	190	0.00	0.00	310	14.13	8.99
	80	-153.55	67.54	200	0.00	0.00	320	6.43	25.54
	90	-158.32	54.54	210	0.00	0.00	330	-1.47	41.31
	100	-158.28	39.89	220	0.00	0.00	340	-9.32	55.82
	110	-158.88	24.42	230	0.00	0.00	350	-16.89	68.65
	120	-171.01	7.83	240	-47.69	-87.03	360	-23.94	79.38

TABLE 5. SUMMARY OF DOWNWIND (XBADJ) AND LATERAL (YBADJ) STACK DISPLACEMENTS EVALUATED IN THE ISC-PRIME MODEL (CONTINUED)

Source	Flow Vector	XBADJ (m)	YBADJ (m)	Flow Vector	XBADJ (m)	YBADJ (m)	Flow Vector	XBADJ (m)	YBADJ (m)
PS12	10	0.00	0.00	130	-463.09	38.05	250	-23.99	-67.07
	20	0.00	0.00	140	-455.38	-8.23	260	-9.89	-54.83
	30	0.00	0.00	150	-433.84	-54.26	270	4.51	-40.92
	40	0.00	0.00	160	-399.12	-98.64	280	0.00	0.00
	50	-124.40	85.13	170	-352.26	-140.02	290	0.00	0.00
	60	-140.64	77.27	180	-297.02	-177.16	300	0.00	0.00
	70	-152.60	67.07	190	-252.02	-208.90	310	8.49	22.04
	80	-159.92	54.83	200	0.00	0.00	320	-1.39	37.41
	90	-162.39	40.92	210	0.00	0.00	330	-11.23	51.64
	100	-159.92	25.77	220	0.00	0.00	340	-20.72	64.31
	110	-158.05	10.23	230	-49.59	-85.13	350	-29.59	75.02
	120	-456.73	83.18	240	-37.35	-77.27	360	0.00	0.00
PS13	10	0.00	0.00	130	-465.02	42.69	250	-27.03	-71.06
	20	0.00	0.00	140	-458.09	-4.00	260	-12.20	-59.29
	30	0.00	0.00	150	-437.24	-50.56	270	3.01	-45.71
	40	0.00	0.00	160	-403.10	-95.59	280	0.00	0.00
	50	-120.18	87.83	170	-356.72	-137.72	290	0.00	0.00
	60	-136.94	80.67	180	-301.81	-175.66	300	0.00	0.00
	70	-149.55	71.06	190	-257.00	-208.26	310	10.42	17.40
	80	-157.62	59.29	200	0.00	0.00	320	1.32	33.18
	90	-160.89	45.71	210	0.00	0.00	330	-7.83	47.95
	100	-159.28	30.75	220	0.00	0.00	340	-16.74	61.26
	110	-158.28	15.24	230	-53.82	-87.83	350	-25.14	72.71
	120	-457.82	88.08	240	-41.05	-80.67	360	-32.77	81.95
PS63	10	17.01	36.19	130	-282.10	70.00	250	-225.40	-98.07
	20	7.54	53.45	140	-282.69	54.66	260	-213.96	-98.75
	30	-35.92	67.08	150	-274.69	37.66	270	-196.02	-97.59
	40	-78.29	78.68	160	-258.34	19.52	280	-153.94	37.06
	50	-118.27	87.88	170	-234.15	0.78	290	-148.57	-93.89
	60	-154.67	94.41	180	-205.15	-17.98	300	-138.77	-83.21
	70	-186.36	98.07	190	-189.19	-36.19	310	-124.75	-70.00
	80	-212.39	98.75	200	-180.24	-53.45	320	-106.94	-54.66
	90	-231.97	97.59	210	-202.33	-67.08	330	-85.87	-37.66
	100	12.79	-37.06	220	-218.28	-78.68	340	-62.20	-19.52
	110	-255.48	93.89	230	-227.59	-87.88	350	-36.64	-0.78
	120	-272.94	83.21	240	-229.99	-94.41	360	-9.97	17.98
S201	10	0.00	0.00	130	0.00	0.00	250	0.00	0.00
	20	0.00	0.00	140	0.00	0.00	260	0.00	0.00
	30	0.00	0.00	150	0.00	0.00	270	0.00	0.00
	40	0.00	0.00	160	0.00	0.00	280	0.00	0.00
	50	0.00	0.00	170	0.00	0.00	290	0.00	0.00
	60	0.00	0.00	180	0.00	0.00	300	0.00	0.00
	70	0.00	0.00	190	0.00	0.00	310	0.00	0.00
	80	0.00	0.00	200	0.00	0.00	320	0.00	0.00
	90	0.00	0.00	210	0.00	0.00	330	0.00	0.00
	100	0.00	0.00	220	0.00	0.00	340	0.00	0.00
	110	0.00	0.00	230	0.00	0.00	350	0.00	0.00
	120	0.00	0.00	240	0.00	0.00	360	0.00	0.00
S202	10	-197.57	-58.75	130	-92.60	-68.37	250	-200.33	135.22
	20	-187.29	-77.30	140	-72.04	-48.69	260	-229.78	135.35
	30	-205.09	-95.51	150	-49.29	-27.54	270	0.00	0.00
	40	-216.65	-110.83	160	-25.05	-5.55	280	0.00	0.00
	50	-221.63	-122.77	170	-0.05	16.60	290	0.00	0.00
	60	-219.87	-130.99	180	22.65	38.26	300	-301.37	85.96
	70	-211.43	-135.22	190	25.38	58.75	310	-314.25	68.37
	80	-196.57	-135.35	200	14.59	77.30	320	-317.58	48.69
	90	0.00	0.00	210	-33.17	95.51	330	-311.27	27.54
	100	0.00	0.00	220	-79.92	110.83	340	-295.50	5.55
	110	0.00	0.00	230	-124.24	122.77	350	-270.75	-16.60
	120	-110.34	-85.96	240	-164.79	130.99	360	-237.77	-38.26

TABLE 5. SUMMARY OF DOWNWIND (XBADJ) AND LATERAL (YBADJ) STACK DISPLACEMENTS EVALUATED IN THE ISC-PRIME MODEL (CONTINUED)

Source	Flow Vector	XBADJ (m)	YBADJ (m)	Flow Vector	XBADJ (m)	YBADJ (m)	Flow Vector	XBADJ (m)	YBADJ (m)
S203	10	-162.23	-165.59	130	-17.74	15.66	250	-310.53	158.04
	20	-133.94	-176.38	140	-12.91	47.06	260	-342.27	138.68
	30	-135.33	-183.83	150	-7.69	77.02	270	-363.61	113.96
	40	-132.62	-185.69	160	-2.23	104.65	280	-373.90	76.13
	50	-125.87	-181.90	170	3.29	129.09	290	-378.41	47.59
	60	-115.30	-172.60	180	6.40	149.62	300	-389.68	16.21
	70	-101.23	-158.04	190	-9.96	165.59	310	-389.11	-15.66
	80	-84.08	-138.68	200	-38.77	176.38	320	-376.72	-47.06
	90	-64.38	-113.96	210	-102.92	183.83	330	-352.88	-77.02
	100	-42.72	-76.14	220	-163.95	185.69	340	-318.31	-104.65
	110	-25.64	-47.59	230	-219.99	181.90	350	-274.08	-129.09
	120	-22.02	-16.21	240	-269.35	172.59	360	-221.52	-149.62
S204	10	-153.14	-166.88	130	-21.16	24.18	250	-316.19	150.81
	20	-124.76	-176.08	140	-17.76	54.85	260	-346.59	130.58
	30	-126.35	-181.93	150	-13.82	83.86	270	-366.46	105.23
	40	-124.10	-182.26	160	-9.46	110.31	280	-375.19	67.04
	50	-118.08	-177.05	170	-4.81	133.42	290	-378.10	38.41
	60	-108.47	-166.46	180	-2.33	152.47	300	-387.78	7.22
	70	-95.57	-150.81	190	-19.05	166.88	310	-385.68	-24.18
	80	-79.76	-130.58	200	-47.94	176.08	320	-371.86	-54.85
	90	-61.53	-105.23	210	-111.90	181.93	330	-346.74	-83.86
	100	-41.43	-67.04	220	-172.46	182.26	340	-311.09	-110.31
	110	-25.95	-38.41	230	-227.78	177.05	350	-265.98	-133.42
	120	-23.92	-7.22	240	-276.18	166.46	360	-212.79	-152.47
S205	10	-170.84	-26.36	130	-134.01	-61.41	250	-185.65	95.88
	20	-166.59	-40.76	140	-114.03	-49.03	260	-208.49	99.15
	30	-191.04	-55.94	150	-90.59	-35.17	270	-225.00	98.26
	40	-209.69	-69.41	160	-64.39	-20.23	280	-234.67	84.74
	50	-221.96	-80.78	170	-36.24	-4.69	290	-242.79	80.24
	60	-227.49	-89.69	180	-9.30	11.01	300	-261.79	71.92
	70	-226.11	-95.88	190	-1.35	26.36	310	-272.84	61.41
	80	-217.86	-99.15	200	-6.11	40.76	320	-275.59	49.03
	90	-202.99	-98.26	210	-47.21	55.94	330	-269.98	35.17
	100	-181.95	-84.74	220	-86.88	69.41	340	-256.15	20.23
	110	-161.26	-80.24	230	-123.90	80.78	350	-234.55	4.69
	120	-149.91	-71.92	240	-157.16	89.69	360	-205.82	-11.01
S206	10	-25.31	-13.08	130	3.97	-8.04	250	-41.58	3.36
	20	-22.21	-16.04	140	4.99	-4.49	260	-39.49	-1.37
	30	-21.58	-18.18	150	5.85	-0.80	270	-36.21	-6.05
	40	-20.29	-19.77	160	6.53	2.91	280	-31.83	-10.55
	50	6.29	-12.37	170	7.02	6.53	290	-28.59	-14.78
	60	9.33	-7.99	180	7.29	9.96	300	-33.53	11.34
	70	-12.99	-10.47	190	7.34	13.08	310	-35.58	8.04
	80	-9.65	-6.46	200	6.40	16.04	320	-36.54	4.49
	90	-6.02	-2.25	210	1.11	18.18	330	-36.40	0.80
	100	-2.21	2.02	220	-4.22	19.77	340	-35.15	-2.91
	110	1.62	5.46	230	-41.93	12.37	350	-32.83	-6.53
	120	2.84	-11.34	240	-42.40	7.99	360	-29.52	-9.96
S207	10	0.00	0.00	130	23.01	-20.28	250	-429.40	68.01
	20	11.44	-209.57	140	0.00	0.00	260	-443.70	29.38
	30	13.60	-191.27	150	0.00	0.00	270	-444.52	-11.30
	40	15.34	-167.15	160	0.00	0.00	280	-431.83	-61.27
	50	16.62	-137.96	170	0.00	0.00	290	0.00	0.00
	60	17.40	-104.57	180	0.00	0.00	300	0.00	0.00
	70	17.64	-68.01	190	0.00	0.00	310	-84.27	20.28
	80	17.35	-29.38	200	-184.14	209.57	320	-86.51	10.64
	90	16.53	11.30	210	-251.85	191.27	330	-86.13	0.68
	100	15.21	61.27	220	-311.91	167.15	340	-83.14	-9.30
	110	0.00	0.00	230	-362.49	137.96	350	-77.61	-19.00
	120	0.00	0.00	240	-402.05	104.57	360	-69.73	-28.13

TABLE 5. SUMMARY OF DOWNWIND (XBADJ) AND LATERAL (YBADJ) STACK DISPLACEMENTS EVALUATED IN THE ISC-PRIME MODEL (CONTINUED)

Source	Flow Vector	XBADJ (m)	YBADJ (m)	Flow Vector	XBADJ (m)	YBADJ (m)	Flow Vector	XBADJ (m)	YBADJ (m)
S208	10	-82.88	-210.04	130	-18.91	106.60	250	-388.69	111.55
	20	-48.08	-206.38	140	-29.86	136.41	260	-411.17	79.33
	30	-45.57	-198.46	150	-39.90	162.07	270	-421.16	43.54
	40	-41.68	-184.51	160	-48.72	182.81	280	-418.35	-3.21
	50	-36.52	-164.95	170	-56.07	198.00	290	-408.41	-38.27
	60	-30.25	-140.38	180	-64.02	207.17	300	-404.31	-73.55
	70	-23.07	-111.55	190	-89.30	210.04	310	-387.93	-106.60
	80	-15.18	-79.33	200	-124.62	206.38	320	-359.76	-136.41
	90	-6.83	-43.54	210	-192.68	198.46	330	-320.67	-162.07
	100	1.73	3.21	220	-254.88	184.51	340	-271.83	-182.81
	110	4.35	38.27	230	-309.34	164.95	350	-214.72	-198.00
	120	-7.39	73.55	240	-354.40	140.38	360	-151.10	-207.17

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The comparative analysis described in this letter demonstrates that the improved representation of building downwash warrants the use of the ISC-PRIME in favor of ISCST3 to predict ambient pollutant impacts attributable to the Cordele OSB Mill. ISC-PRIME has been thoroughly evaluated by the U.S. EPA and is a more appropriate dispersion model for this application.

Norbord and Trinity appreciate Georgia EPD's and your commitment to promptly reviewing the permit application for the Cordele OSB Mill expansion project. As you review the information contained in this letter, please do not hesitate to contact me at (404) 256-1919 to discuss any questions or comments or if additional information is required.

Sincerely,

TRINITY CONSULTANTS

Ryan A. Gesser
Managing Consultant

Attachment/Enclosure

cc: Mr. Phil Towles, Norbord Inc. (Kinards, South Carolina)
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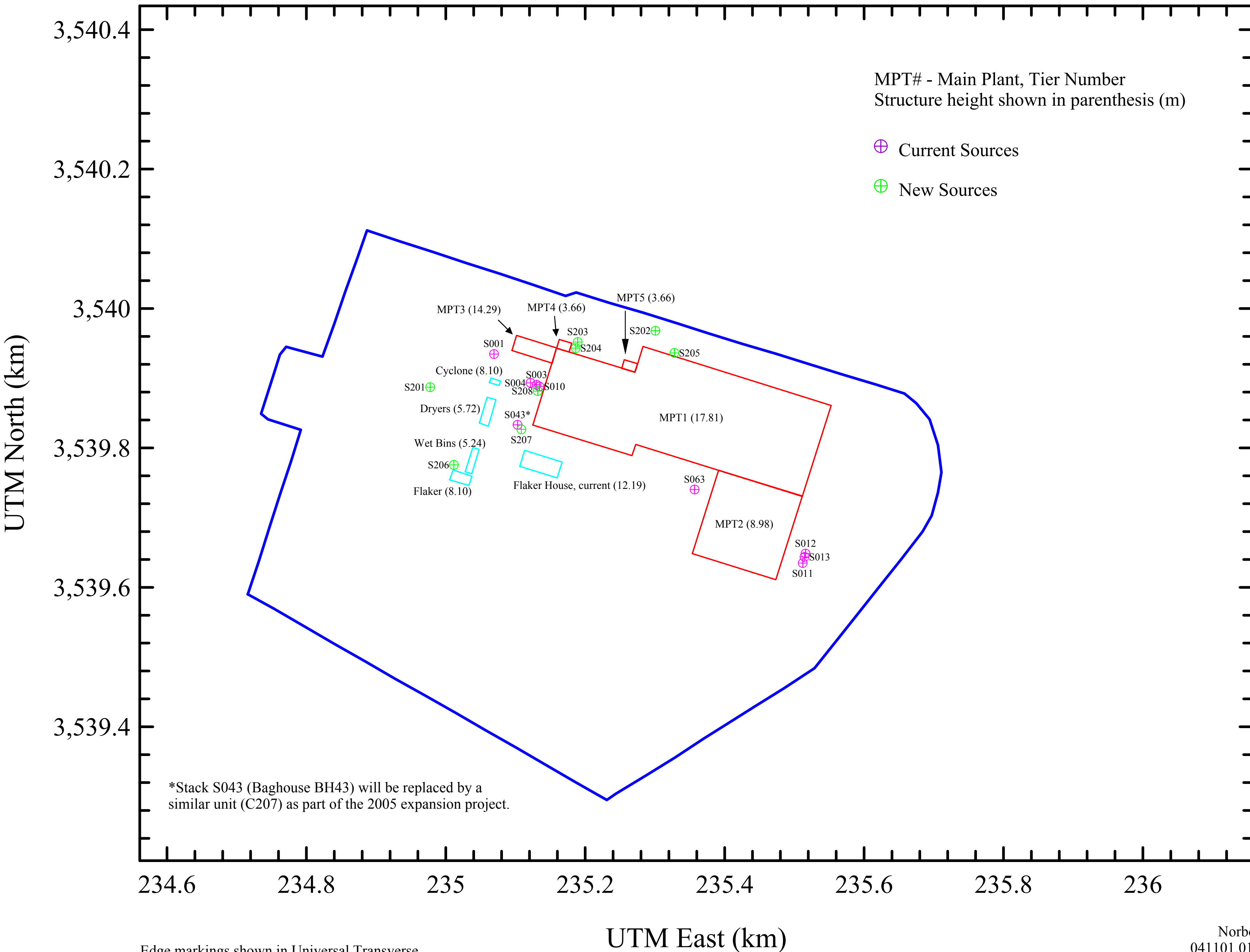
ATTACHMENT

Reference Figure – Stack and Building Locations at the Cordele OSB Mill

Figure A-1. Locations and Heights of Stacks and Structures
Cordele, Georgia OSB Mill



Edge markings shown in Universal Transverse
Mercator Coordinates, Zone 17, NAD27

Norbord
041101.0101
Figure E-2 Plot Plan.srf