NSS NORTHEAST SITE SOLUTIONS

Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
199 Brickyard Rd Farmington, CT 06032
860-209-4690
denise@northeastsitesolutions.com

July 14, 2017

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
24 Town House Road, Durham CT 06422
Latitude: 41.470214
Longitude: -72.68155
T-Mobile Site#: CTNH901A_Temp Cow Site

Dear Ms. Bachman:

T-Mobile is requesting to file an exempt modification to install a temporary wireless communication facility (COW) located at 24 Town House Road, Durham CT 06422. T-Mobile is proposing the temporary wireless facility for service during the 2017 Durham Agricultural Fair.

Proposed Temporary Facility:

The Temporary facility will be located off Town House Road in Durham on property owned by the Durham Agricultural Fair Association (see attached map and drawings). Coordinated for the location are 41-28-12.77 and -72-40-53.58. A copy of the letter of authorization is attached for your review. Electric power will be provided by the Durham Agricultural Fair Association.

Equipment installation will begin approximately September 19, 2017. The site will be on air on or around September 20, 2017. Removal is scheduled after 3 days of the Fair concludes.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman Laura L. Fancis, Elected Official for the Town of Durham and Geoffrey L. Colegrove, Town Zoning Enforcement Officer as well as the property owner.

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The proposed exempt modification for the temporary facility falls squarely within those activities explicitly provided for in R.C.S;A. § 16-50j-72(b)(2).

The operation of the temporary site will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density report, T-Mobiles temporary transmission from the COW will result in a power density corresponding to approximately 24.9% of the ANSI/IEEE standard for uncontrolled environments and compliant with the FCC general public allowable limit.

For the foregoing reasons, T-Mobile respectfully submits that the proposed temporary site for the above referenced facility constitutes an exempt modification under
R.C.S.A. § 16-50j-72(b)(2).

Respectfully,

Denise Sabo
Mobile: 860-209-4690
Fax: 413-521-0558
Office: 199 Brickyard Rd, Farmington, CT 06032
Email: denise@northeastsitesolutions.com

Attachments
cc: Laura L. Francis- First Selectman - as elected official
Goeffrey L. Colegrove- Zoning Enforcement Officer
Durham Agricultural Fair Association - as property owner

7016 1370 0002 3973 1679

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$	

Sent To
Zoning - Mr. Colegrove
Street and Apt. No., or PO Box No.
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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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☐ Adult Signature Required $ $0.00	
☐ Adult Signature Restricted Delivery $	
Postage $1.40	
$	07/17/2017
Total Postage and Fees $4.75	
$	

Sent To
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Street and Apt. No., or PO Box No.
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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

Letter of Authorization

Date: 06/13/2017

Site ID: CTNH901A Durham Fair

REF: APPLICATION FOR ZONING DURHAM FAIR COW

To whom it may concern:

This letter authorizes T-Mobile and its authorized agents to file all necessary administrative approvals, zoning approvals, and building permits for the purposes of installing and maintaining a temporary telecommunications facility on the grounds of the Durham Fair on behalf of T- Mobile

By: _____

Name: Daniel Miramant

Title: President

Date: June 14, 2017

NOTES:

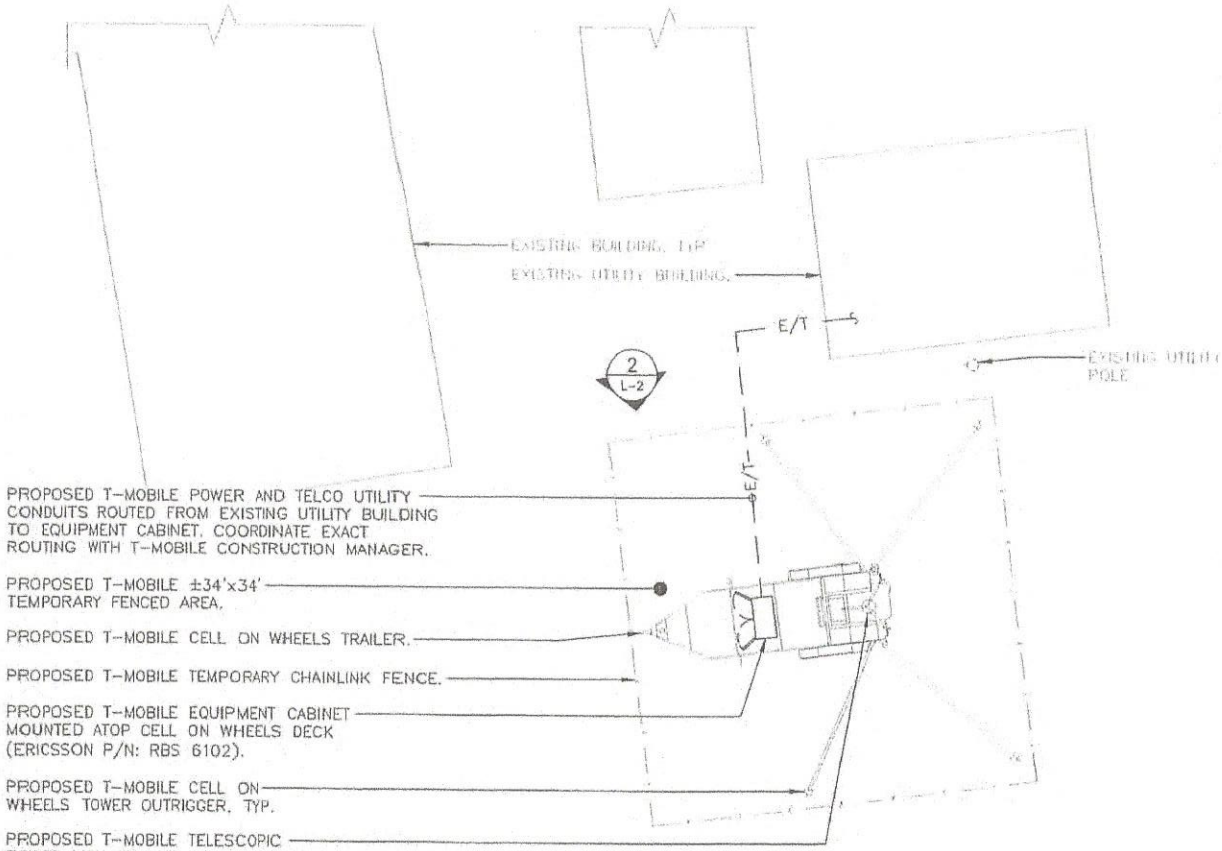
1. PROPOSED T-MOBILE INSTALLATION SHALL CONSIST OF THE INSTALLATION OF (1) EQUIPMENT CABINET ATOP A CELL ON WHEELS TRAILER AND (3) ANTENNAS MOUNTED TO THE TELESCOPIC CELL ON WHEELS TOWER.
2. POWER AND TELCO UTILITY DEMARCS AND ROUTING SHOWN HEREIN IS TENTATIVE/SCHEMATIC AND WILL BE COORDINATED WITH OWNER AND LOCAL UTILITY COMPANY DURING THE CONSTRUCTION PHASE OF THE PROJECT.

LEASE EXHIBIT

THIS LEASE PLAN IS DIAGRAMMATIC IN NATURE AND IS INTENDED TO PROVIDE GENERAL INFORMATION REGARDING THE LOCATION AND SIZE OF THE PROPOSED WIRELESS COMMUNICATION FACILITY. THE SITE LAYOUT WILL BE FINALIZED UPON COMPLETION OF SITE SURVEY AND FACILITY DESIGN.

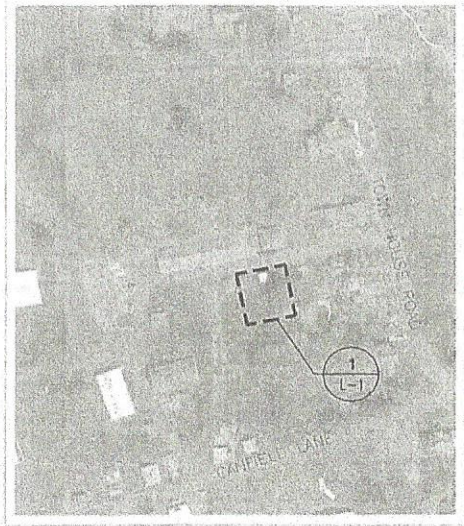
TOWER COORDINATES:	LAT.: 41°-28'-12.77" LNG.: 72°-40'-53.58"
GROUND ELEVATION:	218'± A.M.S.L.

COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH PRO.



1 / L-1 SITE PLAN
SCALE: 1" = 10'

APPROXIMATE NORTH



SITE KEY PLAN
SCALE: 1" = 200'

APPROXIMATE NORTH

REV.	DATE	BY	DESCRIPTION
0	06/10/16	ARC	HWR LEASE EXHIBIT - ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

CENTEK engineering
Centered on Solutions
www.CentekEng.com
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road, Branford, CT 06405

Cellco Partnership d/b/a Verizon Wireless

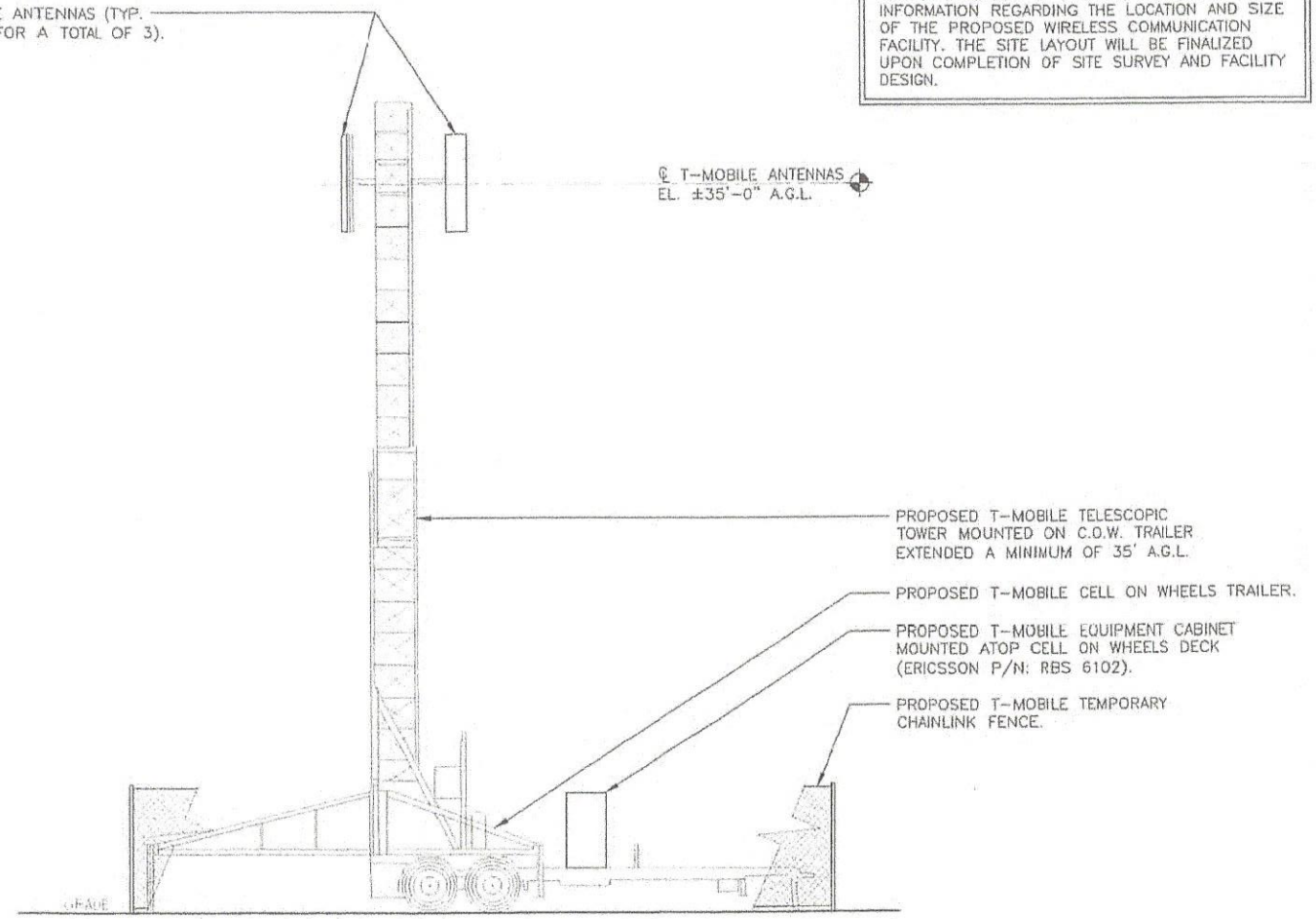
DURHAM COW
24 TOWN HOUSE ROAD
DURHAM, CT 06422

DATE	08/05/16
SCALE	AS SHOWN
JOB NO.	16123.000

SHEET NO.
L-1

LEASE EXHIBIT

THIS LEASE PLAN IS DIAGRAMMATIC IN NATURE AND IS INTENDED TO PROVIDE GENERAL INFORMATION REGARDING THE LOCATION AND SIZE OF THE PROPOSED WIRELESS COMMUNICATION FACILITY. THE SITE LAYOUT WILL BE FINALIZED UPON COMPLETION OF SITE SURVEY AND FACILITY DESIGN.



1 / L-2 NORTHWEST ELEVATION

SCALE: 3/16" = 1'

NO.	DATE	BY	DESCRIPTION
0	08/10/16	MRC	LEASE EXHIBIT - ISSUED FOR CLIENT REVIEW

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Centered on Solutions℠
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(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road, Branford, CT 06405

Cellco Partnership d/b/a Verizon Wireless

DURHAM COW

24 TOWN HOUSE ROAD
DURHAM, CT 06422

DATE:	08/05/16
SCALE:	AS SHOWN
JOB NO.	16123.000

SHEET NO. L-2

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CTNH901A

Durham Fair (COW)
Durham Fair
Durham, CT 06422

August 2, 2016

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	83.40 %

21 B Street Burlington, MA 01803 Tel: (781) 273.2500 Fax: (781) 273.3311

EBI Consulting
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August 2, 2016

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CTNH901A – Durham Fair (COW)**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **Durham Fair, Durham, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu W/cm^2$, and the general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **Durham Fair, Durham, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

3) Since the radios are ground mounted there are additional cabling losses accounted for. For each ground mounted RF path 1.2 dB of additional cable loss was calculated for each 1900 MHz and 2100 MHz channel. This is based on manufacturers Specifications for 40 feet of 1/2" coax cable on each path.

4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

5) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antenna used in this modeling is the **RFS APX16DWV-16DWV-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APX16DWV-16DWV-A20** has a maximum gain of **16.3 dBd** at its main lobe at 1900 MHz and 2100 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is **35 feet** above ground level (AGL).

8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

9) All calculations were done with respect to uncontrolled / general public threshold limits.

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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APX16DWV-16DWV-A20	Make / Model:	RFS APX16DWV-16DWV-A20	Make / Model:	RFS APX16DWV-16DWV-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	35	Height (AGL):	35	Height (AGL):	35
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	5,824.69	ERP (W):	5,824.69	ERP (W):	5,824.69
Antenna A1 MPE%	24.90	Antenna B1 MPE%	24.90	Antenna C1 MPE%	24.90

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**24.90 %**
AT&T	58.50 %
Site Total MPE %:	**83.40 %**

T-Mobile Sector A Total:	24.90 %
T-Mobile Sector B Total:	24.90 %
T-Mobile Sector C Total:	24.90 %
Site Total:	83.40 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) UMTS	2	970.78	35	83.00	2100	1000	8.30 %
T-Mobile 1900 MHz (PCS) LTE	2	1941.56	35	165.99	1900	1000	16.6 %
						Total:	24.9 %

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Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	24.90 %
Sector B:	24.90 %
Sector C:	24.90 %
T-Mobile Per Sector Maximum:	24.90 %
Site Total:	83.40 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **83.40%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.