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Dominion®

December 29, 2008

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Serial No. NA3-08-120
Docket No. 52-017
COL/JPH

DOMINION VIRGINIA POWER
NORTH ANNA UNIT 3 COMBINED LICENSE APPLICATION
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 025
(FSAR CHAPTER 2)

On August 12, 2008, the NRC requested additional information to support the review of certain portions of the North Anna Unit 3 Combined License Application (COLA). The letter contained seven RAIs. The responses to the following two RAIs are provided in Enclosures 1 and 2:

- RAI Question 02.02.03-2 Evaluation of Potential Control Room Accidents
- RAI Question 02.02.03-3 Evaporation Rate Sensitivity Analysis

Response to RAI Letter No. 25, question 03.05.01.05-1, Unit 1 & 2 Turbine Missile Impact on Unit 3 response was submitted in Dominion Letter Serial No. NA3-08-102R dated September 26, 2008. The responses to RAI Questions 02.02.03-1, Explosion Hazard and RAI Question 02.02.03-4, Sodium Hydroxide Quantities were submitted in Dominion Letter Serial No. NA3-08-119 on October 14, 2008. RAI questions 12.02.10, Clarification of FSAR Tables in Chapter 12, and 15.06.05-1, Dose Evaluation Factors were submitted in Dominion Letter Serial No. NA3-08-116 on October 17, 2008. This correspondence provides Dominion's final response to all RAIs associated with NRC RAI Letter No. 25.

Please contact Regina Borsh at (804) 273-2247 (regina.borsh@dom.com) if you have questions.

Very truly yours,

Eugene S. Grecheck

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NRO

COMMONWEALTH OF VIRGINIA

COUNTY OF HENRICO

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Eugene S. Grecheck, who is Vice President-Nuclear Development of Virginia Electric and Power Company (Dominion Virginia Power). He has affirmed before me that he is duly authorized to execute and file the foregoing document on behalf of the Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 29th day of December 2008

My registration number is 7173057 and my

Commission expires: August 31, 2012

Wanda K. Marshall

Notary Public

WANDA K. MARSHALL
Notary Public
Commonwealth of Virginia
7173057
My Commission Expires Aug 31, 2012

Enclosures:

1. Response to NRC RAI Letter No. 025, RAI Question No. 02.02.03-2
2. Response to NRC RAI Letter No. 025, RAI Question No. 02.02.03-3

Commitments made by this letter: None.

cc: U. S. Nuclear Regulatory Commission, Region II
T. A. Kevern, NRC
J. T. Reece, NRC
J. J. Debiec, ODEC
G. A. Zinke, NuStart/Entergy
T. L. Williamson, Entergy
R. Kingston, GEH
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ENCLOSURE 1

Response to NRC RAI Letter 25

RAI Question 02.02.03-2

NRC RAI 02.02.03-2

10 CFR 52.79 (a) (1) (vi) requires a safety assessment of a site is needed to determine suitability of building a reactor on that site. COL Information Item 2.0-6-A related to evaluation of potential accidents to be covered under ESP COL Action item 2.2-2 is one facet of that safety assessment. Provide the bases and methodology for calculating the toxic concentrations at the intake of control room, and potential toxic chemical concentration inside the control room with potential air flow rates. Also provide the modeling assumptions and inputs for accidental chemical release scenarios and evaporation characteristics, dispersion and transport mechanisms, distances to control room, and resulting concentrations both at intake to control room and also in the control room if the intake to control room concentration exceeds the limiting concentration. Such detail is needed for the staff to perform confirmatory calculations.

Dominion Response

ESP COL Action Item 2.2-2 is discussed and addressed in FSAR Sections 2.2.3.1 and 6.4.5 as it relates to potential effects on North Anna Unit 3 control room habitability from accidental releases of potentially toxic chemicals on or near the North Anna Unit 3 site.

As discussed in FSAR 2.2.3.1.3, the scope of this ESP COL action item is understood to be related to the analysis of control room habitability, as stated below:

> *ESP COL Action Item 2.2-2 states that a COL applicant should perform an evaluation of industrial hazards associated with the site and should assess design-specific interactions between the existing and new unit(s) and, if necessary, propose measures to account for such interactions. Based on the NRC FSER, Section 2.2.3.3 (NUREG-1835), this action item is understood to pertain to the analysis of control room habitability in the event of a toxic chemical accident at the NAPS site or in its vicinity.*

Screening of Off-Site Chemicals

Potential accidents involving off-site sources of toxic chemicals in terms of impacts to the Unit 3 control room were evaluated in the ESP in the Site Safety Analysis Report (SSAR), Section 2.2.3. Regulatory Guide (RG) 1.78, Revision 1, requires evaluation of control room habitability for a postulated release of chemicals stored within 5 miles of the control room.

As described in Section 2.2.2 of the SSAR, there are no manufacturing plants, chemical plants, storage facilities, major water transportation routes, or oil or gas pipelines within 5 miles of the ESP site. Therefore, as described in RG 1.78, only two scenarios were evaluated:

1. Chemicals transported on routes within a 5-mile radius of the site, at a frequency of 10 or more per year, and with weights outlined in the RG.
2. Chemicals stored within 0.3 miles of the control room in a quantity greater than 100 pounds.

Four roads (State Roads 652, 601, and 208, and U.S. Route 522) pass within 5 miles of the ESP site. U.S. Route 522 passes about 5 miles to the west-northwest; the other three routes pass the site at closer distances. The NAPS Units 1/2 UFSAR Section 6.4.1.3.3 states that due to lack of chemicals and industrial facilities along these state routes, and considering the longer distance between Route 522 and the site, no chemicals are transported along these routes at a frequency and weight sufficient to require evaluation in accordance with RG 1.78. Therefore, the Units 1/2 UFSAR concludes that no significant control room habitability impact on the existing units is expected due to chemicals being shipped along these routes. Because of the close proximity of the new unit to the existing units, no significant impact would be expected on those persons inhabiting the Unit 3 control room due to chemical accidents on these routes.

Screening and Analysis of Units 1/2 Chemicals

As discussed in SSAR 2.2.3.3, toxic gas analyses were performed on potentially hazardous chemicals stored on the Units 1/2 site (NAPS Units 1/2 UFSAR Table 2.2-6) for their potential impacts to the Units 1/2 control room. The results of this analysis were reported in NAPS Units 1/2 UFSAR, Table 2.2-7, concluding that these chemicals represented no danger of reaching hazardous concentrations of toxic gases in the Units 1/2 control room. Unit 3 FSAR Section 6.4.5 states:

> *Potential toxic gas sources are evaluated to confirm that an external release of hazardous chemicals does not impact control room habitability. These sources include: 1) off-site industrial facilities and transportation routes; 2) Units 1 and 2; and 3) Unit 3.*

Units 1/2 chemicals currently existing (quantity and location) were considered in the analysis for Unit 3 control room habitability. The impact of the chemicals stored onsite at NAPS Units 1/2, was determined to be bounding for Unit 3 based on the greater separation distance to the Unit 3 control room air intakes and lower air exchange rate of the Unit 3 control room compared to the existing Units 1/2 control room. The controlling source parameters used in chemical assessments are the amount of the hazardous material and the distance from any potential control room air intake or in-leakage location. For this purpose, the nearest edge/corner of the Unit 3 control building was used in distance measurements to chemical storage locations.

For Halon 1301, the NAPS Units 1/2 UFSAR Section 9.5.1.2.2.2 establishes the acceptability for Units 1/2 control room habitability of a complete discharge of the Halon 1301 stored in the Units 1/2 main control room into the control room. Any subsequent release would be diluted, and inconsequential for ESBWR Unit 3 control room habitability. Similarly, all other Halon 1301 sources listed in NAPS Units 1/2 UFSAR Section 9.5.1.2.2.2 are located in enclosed spaces, and are not significant sources with respect to Unit 3 control room habitability.

Therefore, the current on-site inventory of toxic chemicals will not pose a hazard to the NAPS Unit 3 control room personnel. The chemicals which could potentially enter the Unit 3 control room air intake in significant quantities were determined to be safe on the basis that the Units 1/2 maximum concentration values are bounding.

Screening of Unit 3 Chemicals

Chemicals stored on site to support the ESBWR operation (NAPS Unit 3) have been identified and evaluated in FSAR Table 2.2-202 "North Anna Unit 3 Onsite Chemical Storage Locations and Quantities" and Table 2.2-203 "North Anna Unit 3 On-Site Chemicals, Disposition." All calculated concentrations of toxic materials inside the control room were determined to be within established limits and, therefore, it was concluded that habitability would be assured under the postulated accidental chemical release scenarios.

An initial screening assessment of Unit 3 related chemicals was performed to identify those that required further analyses. The results of this initial screening assessment are presented in FSAR Table 2.2-203. FSAR Section 2.2.3.1.3 states, "Table 2.2-203 shows that majority of the chemicals are not toxic. For chemicals with immediately dangerous to life or health (IDLH) values listed in this table, the effects of toxic vapors or gases and their potential for incapacitating Unit 3 control room operators are evaluated and the results presented in Section 6.4." The controlling source parameters used in engineering design and toxic chemical assessments are principally the amounts of the hazardous materials and their distance from the nearest edge of the Unit 3 control building. The analysis supporting FSAR Section 6.4 included additional screening considerations. The additional hazard screening considered: (1) the critical characteristics such as amounts stored, volatility, dispersion mechanism; (2) the quantity of chemical released; (3) the distance from the control building; and (4) and applicable toxicity limits.

Chemicals considered hazardous (in the amount stored, the vapor pressure, or distance from control building), as listed in NUREG/CR-6624, such that their accidental release could potentially result in Unit 3 control room intake concentrations exceeding Regulatory Guide 1.78, Revision 1 thresholds were identified for additional, quantitative assessment.

Hydrogen peroxide was evaluated for a range of release mechanisms for aqueous products. The worst case assumed conditions resulted in a release for Unit 3 of 128 grams, which if all evaporated into the control room results in a concentration of 48 ppm. This is less than the NUREG / CR-6624 value for IDLH of 75 ppm.

For the other Unit 3 chemicals considered hazardous based on toxicity limits, analysis was done using the HABIT code, NUREG/CR-6210, Pacific Northwest Laboratory, Richland Washington, US Nuclear Regulatory Commission, June 1996 (and April 10, 2002, as released from the Radiation Safety Information Computational Center). HABIT analysis was performed for Unit 3 nitrogen and carbon dioxide bulk storage tanks. All other identified chemicals, amounts, and locations have been found to be adequately separated such that detection and/or automatic isolation is not required. HABIT models were developed in a conservative manner. For example, contents are treated as puff instantaneous gaseous releases of the entire stored quantity. Additionally, G Stability Class and a range of wind speeds from a minimum of 1.0 meter/second to a maximum of 6.0 meters/second were used to bound the RG 1.78 statement that "Irrespective of the dispersion model or the analysis tool used, the value of the atmospheric dilution factor between the release point and the control room that is used in the analysis should be that value that is exceeded only 5% of the time." The North Anna Early Site Permit Application Environmental Report Tables 2.7-9 show G stability class represents 4.13% of the measured meteorological data, and the wind speed for stability class G is outside the range of 1.01 to 6.0 meters/second only 2.25% of the time.

The discussion below identifies the impacts of the Unit 3 chemical hazards analysis on the North Anna Unit 3 ESBWR design, and confirms the acceptability of the identified storage locations with respect to the addition from the release.

<u>Nitrogen Storage</u>

Nitrogen (an asphyxiant), was evaluated using the NRC's HABIT code and associated EXTRAN and CHEM modules based on postulated instantaneous release. Contents were treated as puff instantaneous gaseous releases using Stability Class G with a range of wind speed from 1 m/s to 6 m/s, in 1m/s increments. Tests were run with more unstable conditions and in all cases, G stability provides bounding control room concentrations. The CHEM module was used to credit the effects of intake and dilution within the control room atmosphere during the plume passage. The assumptions and inputs used for calculating concentrations at the control room intake and in the control room for the HABIT analyses are listed at the end of this RAI response. The threat from nitrogen is by displacement of oxygen. No specific acceptance criterion is provided in RG 1.78, Revision 1. However, the EPA CAMEO data sheets provide Temporary Emergency Exposure Limits (TEELs) which can be used to assure operator protection. Nitrogen concentration at the intakes was calculated to be 7,150 ppm. Results meet the TEEL-1 acceptance criterion or limit which is 14,500 ppm, representing "the maximum concentration below which it is believed nearly all individuals could be exposed without experiencing other than mild transient adverse health effects." Essentially the oxygen content at the intake will remain above 19.5%, a limit sometimes used for indefinite stays. OSHA 29CFR1915.12(a)(2) uses a more restrictive confined space oxygen concentration lower limit of 19.5% by volume. This reduction in concentration can be caused by a simple asphyxiant concentration of 60,000 ppm. This latter value was used in the analysis as the most appropriate toxicity limit for nitrogen. The concentrations at the nearest edge of the control building peak at approximately 680,000 ppm. The bounding calculated control room concentration of the released nitrogen was determined to be less than 800 ppm, clearly within all limits.

Carbon Dioxide Storage

Carbon dioxide was evaluated using the NRC's HABIT code and associated modules as a conservative measure based on postulated instantaneous release. Contents were treated as puff instantaneous gaseous releases using the EXTRAN module and Stability Class G with a range of wind speed from 1 m/s to 6 m/s, in 1m/s increments. The CHEM module was used to credit the effects of intake and dilution within the control room atmosphere during the plume passage. The assumptions and inputs used for calculating concentrations at the control room intake and in the control room for the HABIT analyses are listed at the end of this RAI response. RG 1.78 provides carbon dioxide IDLH value of 40,000 ppm. The concentrations at the nearest edge of the control building peak at approximately 52,000 ppm. The bounding concentration found in the control room is 54 ppm, well below the RG 1.78 limits described above.

Conclusion

Therefore, for these chemicals, it was concluded that habitability would be assured under the postulated accidental chemical release scenarios. Based on the screening assessments done, and conservative inputs and calculation methodologies used in the detailed analyses of certain chemicals, it is concluded that habitability of control room personnel will be maintained in the unlikely event of an offsite or onsite chemical release. For the above analyses, no credit is taken for any control room intake detection, or emergency ventilation automatic actions.

Separately, ESBWR DCD Revision 5 included a design change to incorporate two Ancillary Diesel Generators, housed inside the Ancillary Diesel Building (ADB). Fuel oil for these two diesels will be stored inside the ADB in separate rooms, in two 15,000 gallon tanks. These two diesel fuel oil tanks will be included in the revision to FSAR Table 2.2-202. In addition, the volume required for the standby diesel storage tanks has been increased to 240,000 gallons each (bounding volume). While the fuel oil quantity noted in FSAR Table 2.2-202 is 215,400 gallons, the toxic gas analysis reflects the increased volume. For toxic gas concerns, fuel oil has low volatility and is not considered a chemical of significance.

Proposed COLA Revision

FSAR Table 2.2-202, "North Anna Unit 3 On-site Chemical Storage Locations" and Table 2.2-203 "North Anna Unit 3 On-Site Chemicals, Disposition" have been revised as part of COLA Revision 1 which was submitted on December 19, 2008.

Inputs and Assumptions Used in Toxic Gas Analysis

Nitrogen Analysis HABIT Inputs

Concentration Units	1 ppm
Release Type	Gas tank burst
Initial Mass	76,600 kg
Release Height	-00.0 m
Storage Temperature	-40 C
Distance to Intake	184 m
Intake Height	-00.0 m
Wind Speed	1 m/s to 6m/s, 1 m/s increments
Atmospheric Stability Class	G
Air Temperature	30 C
Atmos. Pressure	760 mm Hg
Molecular Weight	28 g/mole

Nitrogen HABIT CHEM Module Inputs

0	Effluent Vertical velocity m/s
0	Effluent flow rate (m3/s)
0	Release height (m)
4	Building height (m)
4	Building cross sectional Area (m2)
15	Horizontal Distance to receptor (m)
0	Air intake height (m)
0	Windspeed (m/s)
0	Vertical dispersion class
0	Horizontal dispersion class
0.2	Flow rate from unfiltered intake source #1 (m3/s)
0	Flow rate from unfiltered intake source #2 (m3/s)
0	Bottled air flow rate (m3/s)
0	Flow rate from filtered intake source #1 (m3/s)
1 0 0	Filter efficiencies #1, (Elem., Org., Part.)(fraction)
0	Flow rate from filtered intake source #2 (feeds recirc, m3/s)
0 0 0	Filter efficiencies #2, (Elem., Org., Part.)(fraction)
0	Recirculation flow rate (m3/s)
0 0 0	Recirc. filter efficiencies , (Elem., Org., Part.)(fraction)
1	Control room occupancy factor
	CONTROL ROOM VOLUME = 2200.00 (m**3)

Nitrogen Analysis Assumptions

1. Assumes full tank concentration (25,000 gallons = 76,600 kg) instantaneous release as gas, with release and intake conservatively the same at 0 elevation, separated by 184 meters.
2. Concentration analyzed at control room intake and in the control room. Concentrations inside of the control room are, as would be expected, significantly lower.
3. Threat is by displacement of oxygen. No specific acceptance criterion in RG 1.78 or supporting NUREG/CR6624.
4. The EPA CAMEO data sheet provides Temporary Emergency Exposure Limits (TEELs), which can be used to assure operator protection. The lowest TEEL limit provided, TEEL-1, is 14,500 ppm for a simple asphyxiant
5. Results meets TEEL-1 acceptance criterion, "The maximum concentration in air below which it is believed nearly all individuals could be exposed without experiencing other than mild transient adverse health effects or perceiving a clearly defined objectionable odor.
6. OSHA 29CFR1915.12(a)(2) uses a more restrictive confined space oxygen concentration lower limit of 19.5% by volume. This reduction in concentration can be caused by a simple asphyxiant concentration of 60,000 ppm.
7. HABIT was run with an extremely conservative assumption that the nitrogen is released instantly as a vapor cloud. Concentrations are determined at the control room intake using the EXTRAN module, and in the Control Room using the CHEM module.
8. For the HABIT runs, G atmospheric stability was assumed and sensitivity analyses run for a range of flow rates from 1 to 6 m/s in 1 m/s increments.
9. F stability cases and additional informal tests were also run with more unstable conditions and in all cases, G stability provides bounding control room concentrations.
10. The bounding calculated control room concentration of the released nitrogen was determined to be less than 800 ppm, or with resulting oxygen concentrations clearly within even the OSHA limit.

Inputs and Assumptions Used in Toxic Gas Analysis

Carbon Dioxide HABIT Analysis Inputs

Concentration Units	1 ppm
Release Type	Gas tank burst
Initial Mass	3122 kg
Release Height	-00.0 m
Storage Temperature	-40 C
Distance to Intake	181 m
Intake Height	–00.0 m
Wind Speed	1 m/s to 6m/s, 1 m/s increments
Atmospheric Stability Class	G
Air Temperature	30 C
Atmos. Pressure	760 mm Hg
Molecular Weight	44 g/mole

Carbon Dioxide HABIT CHEM Module Inputs

0	Effluent Vertical velocity m/s
0	Effluent flow rate (m3/s)
0	Release height (m)
4	Building height (m)
4	Building cross sectional Area (m2)
0.2	Horizontal Distance to receptor (m)
0	Air intake height (m)
0	Windspeed (m/s)
0	Vertical dispersion class
0	Horizontal dispersion class
0.2	Flow rate from unfiltered intake source #1 (m3/s)
0	Flow rate from unfiltered intake source #2 (m3/s)
0	Bottled air flow rate (m3/s)
0	Flow rate from filtered intake source #1 (m3/s)
1 0 0	Filter efficiencies #1, (Elem., Org., Part.)(fraction)
0	Flow rate from filtered intake source #2 (feeds recirc, m3/s)
0 0 0	Filter efficiencies #2, (Elem., Org., Part.)(fraction)
0	Recirculation flow rate (m3/s)
0 0 0	Recirc. filter efficiencies , (Elem., Org., Part.)(fraction)
1	Control room occupancy factor
	CONTROL ROOM VOLUME = 2200.00 (m**3)

Carbon Dioxide HABIT Analysis Assumptions

1. Assumes full tank concentration of 800 gallons (7.481 gallons/cf * 64.3 lb/scf * 0.454 kg/lb = 3122 kg) instantaneous release as gas with release and intake conservatively the same at 0 elevation.
2. Concentration analyzed initially at control room intake at a distance of 181 meters, assumed to be at the release location height. Analyzed concentration inside of the control room is, as would be expected, significantly lower.
3. RG 1.78 provides Carbon Dioxide Immediately Dangerous to Life or Health (IDLH) value of 40,000 ppm.
4. The bounding concentration in the control room is 54 ppm, well below the RG 1.78 limit.

ENCLOSURE 2

Response to NRC RAI Letter 25

RAI Question 02.02.03-3

NRC RAI 02.02.03-3

10 CFR 52.79 (a) (1) (vi) requires a safety assessment of a site is needed to determine suitability of building a reactor on that site. COL Information Item 2.0-6-A related to evaluation of potential accidents to be covered under ESP COL Action item 2.2-2 is one facet of that safety assessment. Provide justification (on the basis of sensitivity analysis), in selecting limiting meteorological conditions that would give the highest chemical release (e.g., evaporation rate) in conjunction with conditions impacting dispersion of vapor plume to give highest chemical concentrations at the intake of control room. Note that the set of meteorological conditions resulting in the limiting rate of release may not be same as those resulting in the limiting dispersion of the effluent. Depending on the methodology used, release scenario applied, chemical considered lower wind speed and stable atmospheric conditions may not always ensure estimation of limiting concentration.

Dominion Response

The basis for the sensitivity analysis was selected in accordance with the guidance provided in Regulatory Guide (RG) 1.78, Revision 1. As described in RAI response 02.02.03-2, it was determined that two chemicals, nitrogen and carbon dioxide required detailed analyses of concentration. In accordance with the provisions of RG 1.78, the value of the atmospheric dilution factor between the release point and the control room that was used in the analysis was that value that would be exceeded no more than 5% of the time irrespective of the dispersion model or the analysis tool used. Chemical releases for the two chemicals evaluated were conservatively treated as puff instantaneous gaseous releases using the EXTRAN module of the HABIT code.

Regarding stability class and wind speed for the HABIT runs, G Stability Class and a range of wind speeds from a minimum of 1.0 meter/second (m/s) to a maximum of 6.0 m/s were used to bound the RG 1.78 statement that "Irrespective of the dispersion model or the analysis tool used, the value of the atmospheric dilution factor between the release point and the control room that is used in the analysis should be that value that is exceeded only 5% of the time." The North Anna Early Site Permit Application Environmental Report Table 2.7-9 shows G stability class represents 4.13% of the measured meteorological data, and the wind speed for stability class G is outside the range of 1.01 to 6.0 m/s only 2.25% of the time.

HABIT was run with a highly conservative assumption that the nitrogen and carbon dioxide are released instantly as vapor clouds (i.e., "puff releases"). Concentrations are determined at the control room intake using the EXTRAN module, and in the control room using the CHEM module. A sensitivity analysis was run for a range of flow rates from 1 to 6 m/s in 1 m/s increments.

The results of the HABIT analysis associated with nitrogen release and dispersion are illustrated in Attachment 1. While the nitrogen concentration at the control building ventilation intake increases with increasing wind speed, the nitrogen concentration inside the control room achieves a peak value when evaluated at a wind speed of 3 m/s. The maximum nitrogen concentration reached in the control room is approximately 800 ppm. While no specific acceptance criteria is provided in RG 1.78 or supporting NUREG/CR-6624, the concern with nitrogen is the displacement of oxygen. EAP CAMEO Data Sheets provide Temporary Emergency Exposure Limits (TEELs) that can be used to assure operator protection. The lowest TEEL limit provided, TEEL-1, is 14,500 ppm for a simple asphyxiant. OSHA 29CFR1915.12(a)(2) uses a more restrictive confined space oxygen concentration lower limit of 19.5% by volume. This reduction in concentration can be caused by a simple asphyxiant concentration of 60,000 ppm. This latter value was used in the analysis as the most appropriate toxicity limit for nitrogen. The attached results show a significant margin exists between the bounding case and the control room nitrogen concentration limits.

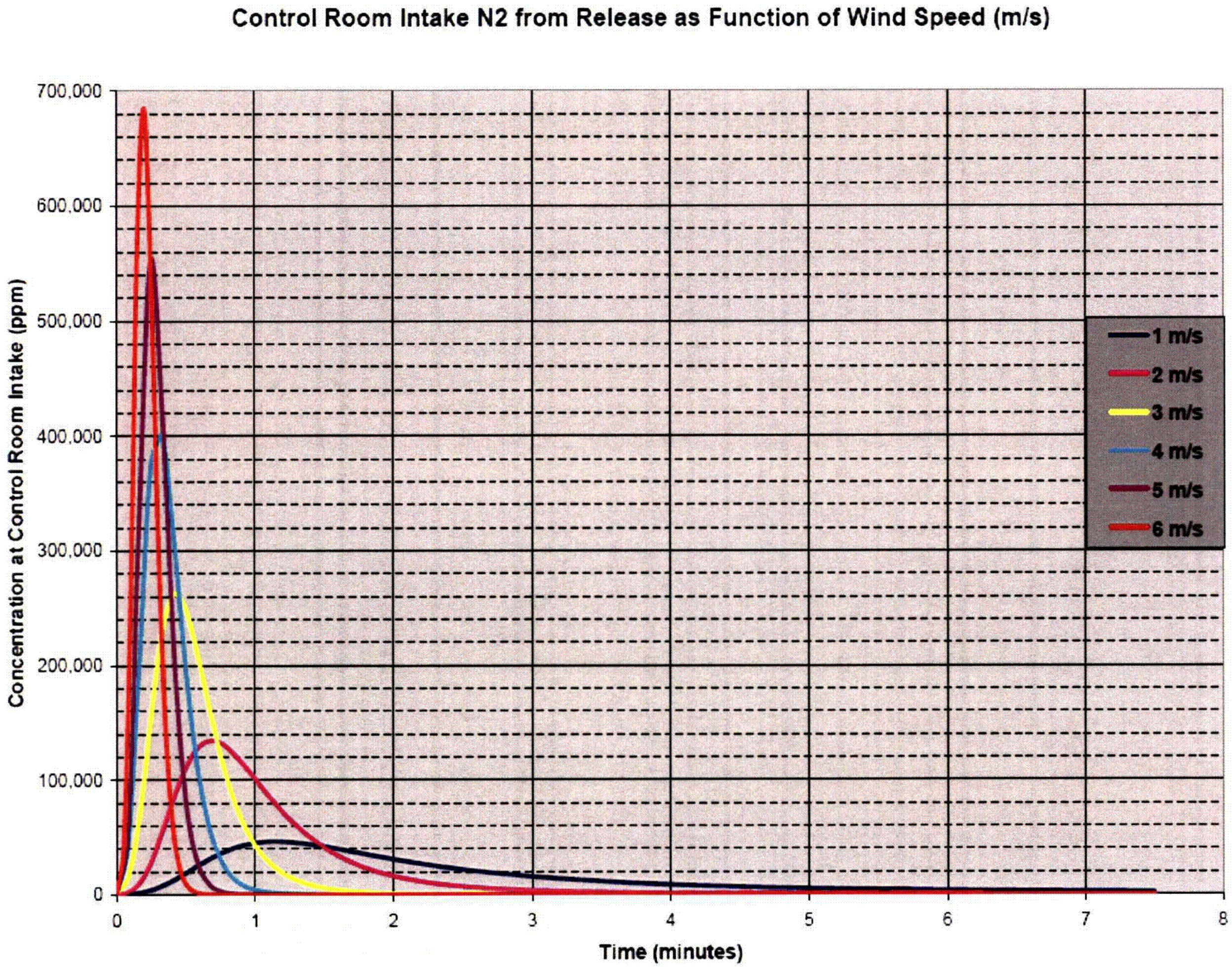
The results of the HABIT analysis associated with carbon dioxide release and dispersion are illustrated in Attachment 2. For carbon dioxide, the bounding concentrations, both at the control building ventilation intake and inside the control room, occur at the maximum wind speed evaluated (6 m/s). The maximum carbon dioxide concentration inside the control room is approximately 54 ppm. Regulatory Guide 1.78 lists a carbon dioxide Immediately Dangerous to Life or Health (IDLH) value of 40,000 ppm. The attached results show a significant margin exists between the bounding case and the control room carbon dioxide concentration limits.

The sensitivity analysis presented for nitrogen and carbon dioxide provide justification that limiting meteorological conditions in conjunction with conditions impacting dispersion of vapor plume were used to give the highest chemical concentrations at the intake of control room.

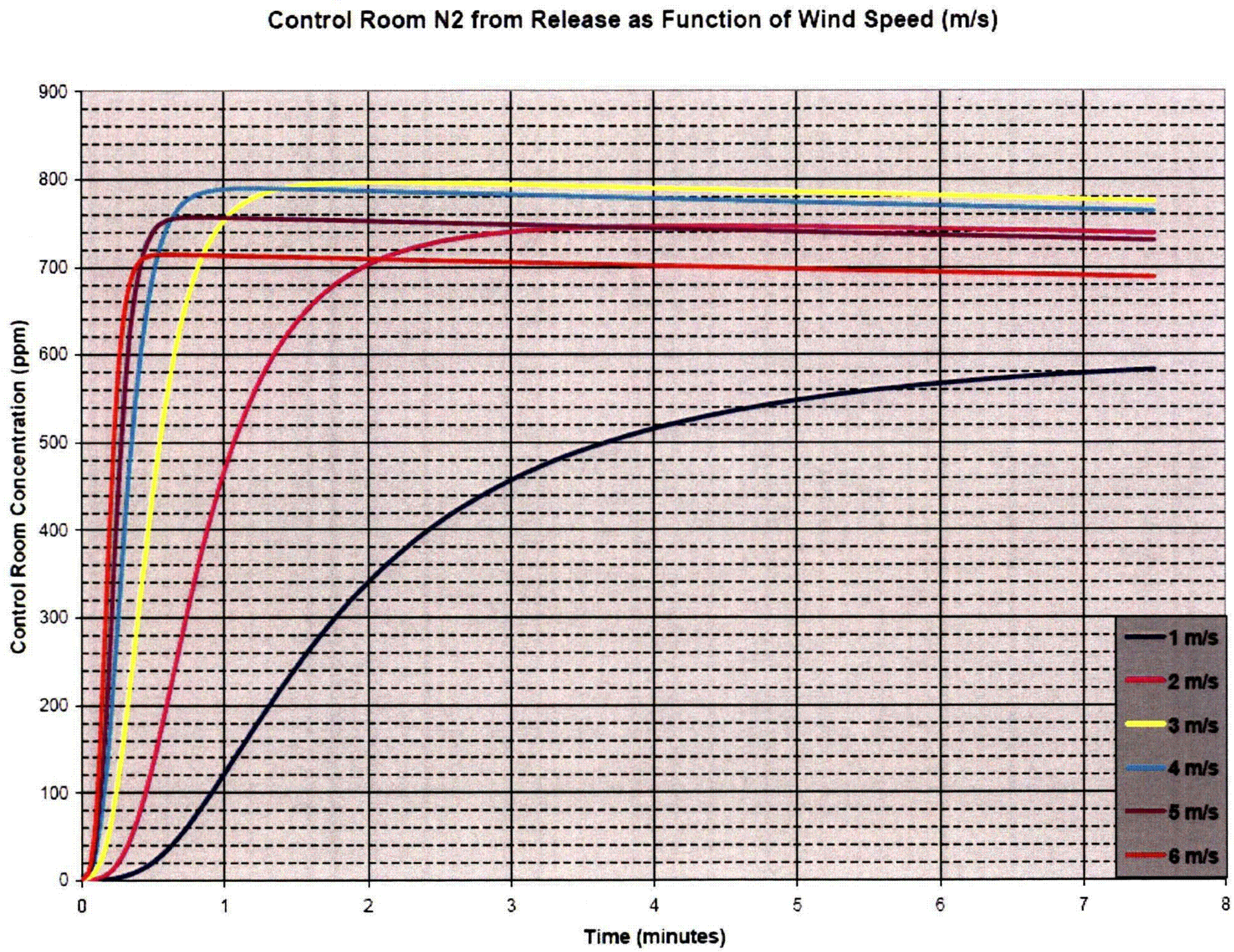
Proposed COLA Revision

None.

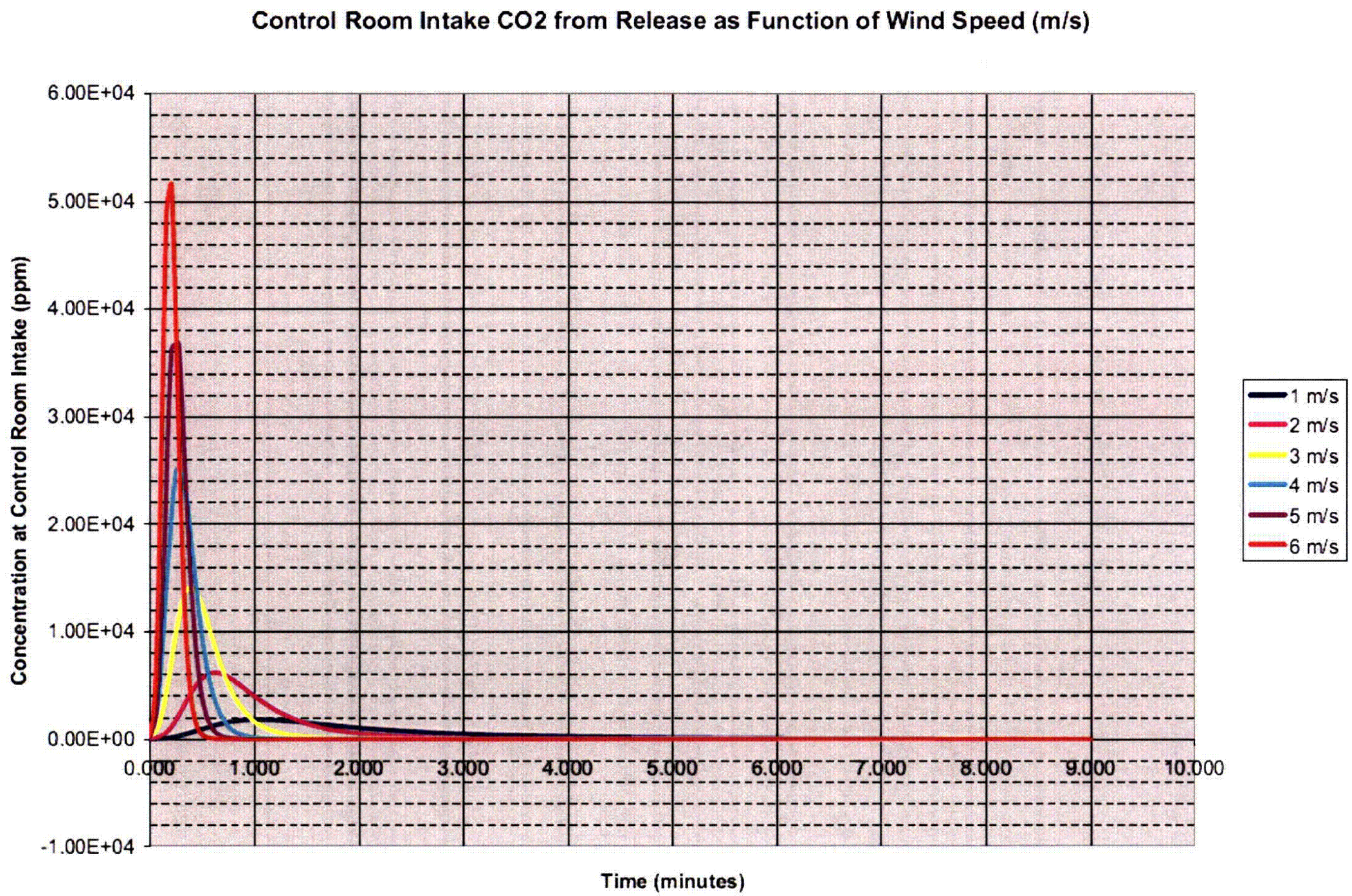
Attachment 1 (Page 1 of 2)



Attachment 1 (Page 2 of 2)



Attachment 2 (Page 1 of 2)



Attachment 2 (Page 2 of 2)