

**VIA Certified U.S. Mail, Return Receipt Requested
and e-mail (richard.kayser@nist.gov)**

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RE: Information Quality Request #07-06

Dear Dr. Kayser,

The enclosed Request for Correction (the “Request”) was submitted to the National Institute of Standards and Technology (“NIST”) on April 12, 2007 by Bob McIlvaine, Dr. Steven Jones, Kevin Ryan, Richard Gage, AIA Architect, and Scholars for 9/11 Truth and Justice (referred to herein collectively as the “Requesters”) under Section 515 of Public Law 106-554, the Data Quality Act, the Office of Management and Budget’s government-wide Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies, and NIST’s “Guidelines, Information Quality Standards, and Administrative Mechanism.”

NIST responded to the Request by way of a letter dated September 27, 2007 from Ms. Catherine S. Fletcher (the “Response”), a copy of which is enclosed herewith. While the Requesters appreciate the time and effort NIST personnel put into the Response, some troubling issues remain outstanding. This letter constitutes an appeal of the decisions handed down in the Response, and asks NIST, through its Deputy Director, to reconsider its position on the issues raised in the Request. The particular issues raised in the Request, and addressed in the Response, will be considered in detail below in the order they were addressed in the Request and the Response. However, the Deputy Director is cordially invited to read through the entire original Request (enclosed herewith for your convenience) in detail, because it raises serious issues with the WTC Report that have not been adequately addressed by the NIST personnel in charge of responding to it. The entire original Request is incorporated herein by reference, as if fully set out herein.

A. Rejection of the Less Severe Damage Estimates

In the Response, NIST indicated that it has issued an erratum to the WTC Report. This erratum removed one of the false justifications relied upon by NIST for rejecting the less severe damage case, namely the justification that “the towers would not have collapsed had the less severe damage results been used.” However, the other false justification still remains in the WTC Report.

In order to continue rejecting the less severe damage estimate, NIST inexplicably continues to rely on the “key observable” that “no aircraft debris was calculated to exit the side opposite to impact ... in contradiction to what was observed in photographs and videos of the impact event.” This “key observable” should not be relied upon to make

any conclusions regarding the simulations for the simple reason that NIST admits in the Response that “uncertainties in the configuration of the building interior on the floors of impact ... [influenced] the modeling results.” As a result “none of the damage scenarios resulted in landing gear debris exiting the opposite face of the WTC 1 model.” In sum, NIST relies on a “key observable” in rejecting the less severe damage case, while at the same time admitting that its own computer models are unable to accurately represent this “key observable.” In the Response, NIST has done absolutely nothing to overcome the argument that either all of the computer models should be accepted or all should be rejected based on this “key observable,” because none of the damage simulations resulted in this “key observable” occurring. The Requesters, therefore, again respectfully request that NIST revise the WTC Report so that only legitimate justifications are relied upon when accepting or rejecting a particular computer simulation.

Furthermore, the erratum makes no mention of the other justification NIST relies on in the Response for rejecting the less severe damage case, namely the “shifting of building contents due to the aircraft impact.” NIST’s reliance on this justification is puzzling, to be sure, in light of NIST’s statement elsewhere in the WTC Report that “no visible information could be obtained for the extent of damage to the interior of the towers, including the structural system (floors and core columns), partition walls, and interior building contents.” (*See* NCSTAR 1-2 (pp iv, xxxix)) NIST must explain how its reliance on “shifting of building contents due to the aircraft impact” as a “key observable” can be reconciled with its statement that NIST had “no visible information” regarding damage to the “interior building contents.” The Requesters, therefore, again respectfully request that NIST address their concerns about the rejection of the less severe damage estimate without relying on false justifications (especially justifications that are contradicted by NIST’s own statements elsewhere in the WTC Report) and provide the American people with the truth about why the less severe case was rejected.

It is clear to Requesters that the only justification NIST can rely upon for rejecting the less severe damage case is that the Towers would not have collapsed. Such reasoning is clearly circular and unscientific in that it assumes what has to be proved, and is in violation of the DQA, the NIST IQS and the OMB Guidelines governing scientific information and influential scientific information. Requesters also ask NIST and its Deputy Director to reconsider the analysis and requests contained in Section V.A. of their original Request because the Response does little to even attempt to refute what is contained therein.

B. NIST Computer Simulations

In the original Request, the Requesters questioned NIST’s “pruning” of the analysis tree in Figure 9-2 to produce the “pruned” Figure 9-3. In its Response, NIST claims that the “pruned” analysis tree in Figure 9-3 “resulted from an orthogonal factorial design of experiments [OFD or DOE] analysis to identify the most influential parameters.” However, this new statement is contrary to the description of the OFD in the WTC Report.

The orthogonal factorial DOE (OFD) used by NIST was intended to reduce the number of factors (or parameters), **not the number of levels**. As stated in NCSTAR 1-6, p. 290, “The OFD approach allowed for the identification of **influential parameters** (i.e. factors) that reduced the number of analysis runs in the global” experiments. With specific regard to the damage estimates, NCSTAR 1-6, Chapter 5 (cited in the Response), states that an “experimental design approach, using the method of orthogonal factorial design was used to determine the **parameters that had the greatest effect on the estimated damage**.” (See NCSTAR 1-6, p. 121) However, the less severe (-), base (0), and more severe cases (+) are descriptions of the **levels** used in NIST’s experiments, not parameters, and NIST makes no mention that OFD was used to exclude specific damage levels (cases). Instead, NIST states that it relied solely on “key observations” in deciding whether to exclude a particular damage case.¹ (See *Id.*) The stark contrast between an OFD, which determines “influential parameters,” and exclusion of damage cases (levels) based on “key observables,” could not be more apparent. NIST has not explained why the less severe or base levels (cases) were fully excluded once the desired factors (or parameters) had been established by NIST’s OFD screening experiments. In a valid DOE, all levels should have been included in the final global analysis, including those represented by the less severe and base cases for any given set of factors. NIST’s statement that it relied on its OFD analysis for excluding the less severe and base case damage estimates flies directly in the face of the description of the OFD process contained in the WTC Report.

The OFD approach used by NIST in the WTC Report has other serious problems. First, NIST’s use of a Plackett-Burman design was not appropriate for the purpose of the WTC Report. NCSTAR 1-2B describes the reporting of the DOE analysis of sub-components. NIST used a Plackett-Burman design to screen out non-influential factors (or parameters) prior to conducting their global analyses. This was not appropriate for NIST’s purposes, because a Plackett-Burman DOE assumes that interactions between factors are negligible. Not only was the validation of that assumption not reported but, for the factors analyzed, it is not likely to be valid. In order for these analyses to be useful under the DQA and related information quality guidelines, NIST must show the American public how this assumption is valid for all factors involved.

Second, the main and interaction effects for each factor were not reported. Although NIST reported graphically the main effects of some experiments used in the sub-component DOE analyses, the actual values for main effects were not reported. And as stated above, interaction effects were not calculated and were inappropriately assumed to be zero or negligible. Without these values, and a determination of resolution, independent qualified members of the public cannot establish the validity of the experiments.

Third, the magnitude used for each factor (or parameter) was not consistent in the sub-component analyses. When varying the magnitude of most factors, the minimum

¹ The Requesters have shown in the original Request, and in Section A above, how NIST’s reliance on what it calls “key observables” in rejecting these damage cases is also scientifically untenable and in violation of the DQA.

values and maximum values were set equidistant from the baseline values. However, for the engine-core column impact analysis, the maximum “strain rate” was set ten times higher than the baseline value, at 1000% instead of 190% as would be expected in relation to the varying of other factors (*See* NCSTAR 1-2B, pp 178-180). For this and other reasons, NIST’s treatment of “strain rate” in these virtual experiments is dubious, and the logic behind the selection of different magnitudes for the factors in NIST’s screening DOE is questionable.

Fourth, the public cannot understand NIST’s selection of factors in the DOE. It appears that the responses for each experiment were judged simply by whether or not they resulted in maximal damage to the building and components. On the other hand, NIST suggests in the Response that the results were judged by comparison to photographic evidence. These criteria are not in agreement. The public cannot verify NIST’s comparison of experimental responses to photographic evidence without access to all the photographic evidence and the logic used. Specifically, the WTC Report should be revised to specifically include the photograph, photographs, and/or video still frames NIST used to verify its DOE analysis. The DQA and related guidelines require this revision because it will allow a qualified member of the public to perform an independent reanalysis and verify NIST’s conclusions. Furthermore there is a need for NIST to release all photographic and video evidence in its possession in order that the public may have the opportunity to ensure that there are not other photos and videos which are capable of a different interpretation. Without such full release there is no way that the public can assure itself that NIST has not been selective in choosing its data.²

The Requesters, therefore, respectfully request reconsideration of all analysis and requests made in Section V.B. of the original Request, and consideration of the points made herein. Hand waving reliance on its OFD approach as a justification for excluding damage levels is a clear violation of the DQA and related guidelines. As it stands, the “pruning” of the less severe and base cases from the NIST computer simulation analysis and from the WTC Report itself clearly violates OMB’s Guidelines and the NIST IQS standards of objectivity. An unbiased, accurate, reliable report would include the results of all of the computer simulations run, especially when the WTC Report already states that the less severe and base impact damage cases fit reasonably well with the observed damage. This is true because the objectivity standards for scientific information under the NIST IQS require analytic results to be developed using sound statistical and research methods. This is especially true in light of NIST’s dubious design of its DOE analysis and its neglect of any interaction between factors considered.

Furthermore, the “pruning” of the less severe and bases cases from the WTC Report analysis violates the OMB Guidelines and NIST IQS as they govern “influential scientific information” and analytic results related thereto. The OMB Guidelines require such transparency about data and methods “that an independent reanalysis could be undertaken by a qualified member of the public.” *See* 67 F.R. 8460. By “pruning” the less severe and base cases from its detailed analysis, no member of the public can look at

² This appeal letter is not a Freedom of Information Act request, and should not be treated as such.

the data and determine whether airplane impact damage plus the resulting fires alone resulted in the building collapse.

The Requesters are not the only members of the public that question NIST's computer simulations. An article in the journal *New Civil Engineering* (NCE) lends support to the Requesters' concerns about the NIST analysis of the WTC collapses. This article states, in relevant part:

World Trade Center disaster investigators [at NIST] are refusing to show computer visualizations of the collapse of the Twin Towers despite calls from leading structural and fire engineers, NCE has learned. Visualisations of collapse mechanisms are routinely used to validate the type of finite element analysis model used by the [NIST] investigators. The collapse mechanism and the role played by the hat truss at the top of the tower has been the focus of debate since the US National Institute of Standards & Technology (NIST) published its findings....

University of Manchester [U.K.] professor of structural engineering Colin Bailey said there was a lot to be gained from visualising the structural response. **'NIST should really show the visualisations; otherwise the opportunity to correlate them back to the video evidence and identify any errors in the modeling will be lost,'** he said....

A leading US structural engineer said NIST had obviously devoted enormous resources to the development of the impact and fire models. 'By comparison the global structural model is not as sophisticated,' he said. **'The software used [by NIST] has been pushed to new limits, and there have been a lot of simplifications, extrapolations and judgment calls.'**

Parker, Dave (2005). "WTC investigators resist call for collapse visualisation," *New Civil Engineer*, October 6, 2005. (emphasis added)

Moreover, the "pruning" actually confuses the public into believing that all of the "pruned" levels lead to building collapse. The WTC Report should be revised to cure this clear bias. In sum, it is impossible for a qualified member of the public to read the WTC Report, undertake "an independent reanalysis," and come to the same conclusion as NIST, which is a clear violation of applicable information quality standards as detailed in the original Request. The appropriate action for NIST to take is to display the full set of pathways unpruned and to clearly mark those which do not result in collapse. This would allow the public to have a means to observe, at that point in the study, that collapse solely due to impact damage and fire is a matter of probability rather than a foregone conclusion to be merely explained.

C. Information in Figure 9-3 Violates the OMB and NIST IQS Objectivity Standards

In its Response, NIST blithely states that the “isolated core model was used by NIST to inform its global analysis by analyzing this particular building subsystem” and the fact that the severe damage cases would not converge on a solution did not present any problem for NIST’s analysis. Requesters again submit that NIST’s use of the base case damage scenario for the isolated core models, which in turn “informed” its global models, is a clear violation of the DQA, NIST IQS and OMB Guidelines. First, the fact that the more severe damage cases would not converge is clear evidence that NIST was biased towards finding that the most possible damage to the core columns occurred because the damage estimates were set too high. Second, Figure 9-3 indicates that the base damage case was “pruned” from the analysis, yet the Response readily admits that the base damage cases were used to “inform” the global analysis. Requesters respectfully request that these two positions be reconciled with an appropriate revision to the WTC Report, and a clear explanation for NIST’s justification for “pruning” a damage estimate which still “informed” its global analysis.

In the Response, NIST treats Requesters’ second request for correction with even less analysis or explanation. The specific point made by Requesters, namely that “[n]o columns buckled in either Case C or Case D” for WTC2, was not even addressed by NIST in the Response. (*See* NCSTAR 1-6 p.192) Instead, NIST provides nothing but conclusory statements that merely repeat the incorrect statements contained in the WTC Report. Requesters hereby request and demand that NIST explain how “significant core weakening” was “necessary to initiate building collapse” in light of the WTC Report’s finding that “[n]o columns buckled in either Case C or Case D” for WTC2. (*See* NCSTAR 1-6 p.322) A reconciliation of these statements is necessary to bring the WTC Report in line with the strictures of the DQA, NIST IQS and OMB Guidelines as they relate to objectivity and utility.

Because none of the points raised by Requesters in Section V.C. of the original Request have been adequately addressed by NIST, Requesters hereby request reconsideration of and a more detailed response to the same.

D. Floor Sagging

In the original Request, the Requesters demonstrated that the results of NIST’s physical tests of floor assemblies were vastly different than the computer models ultimately relied upon by NIST in its analysis. In the Response, NIST states “it is not possible to compare the floor sagging observed during the ASTM E119 tests with the floor sagging calculated by the analysis models. The ASTM E119 furnace profile is not representative of real fire condition. In addition the specimens had been fireproofed which prevented the steel from heating as quickly as it would in an unprotected condition as was modeled based on the estimated damage to the fireproofing due to debris impact. Finally, deflection of the floor assemblies undergoing the ASTM E119 testing was limited to prevent damage to the instrumentation. Visual data of the WTC Towers confirmed significant floor sagging at several locations in the towers.”

The biggest problem with NIST's response to this point can be summarized as follows: Why did NIST perform the floor tests if the results were, by design, not going to be used in the subsequent analyses? Why did NIST officials pay Underwriters Laboratories (UL) approximately \$250,000 of the American public's tax dollars to perform these tests? Will UL or NIST be refunding this money to the taxpayers since the factors NIST claims make these results unusable were knowable beforehand? NIST must justify its performance of these physical tests in some meaningful way in order to satisfy the DQA, NIST IQS and OMB Guidelines. In the alternative, NIST may admit that the real reason it did not want to use these results is that they did not support NIST's predetermined conclusions.

Moreover, NIST's May 2003 progress report on the WTC Report paints a somewhat different picture around these physical tests: "NIST intends to carry out testing to assess the fire rating and behavior of a typical fireproofed floor assembly under the fire conditions prescribed in ASTM E 119. In addition, information contained in this report (e.g., on fireproofing material and thickness, and fire rating) will be used in conducting the ASTM E 119 tests and to analyze thermal-structural response of the WTC towers." Apparently sometime between May 2003 and the time the final WTC Report was issued, NIST decided it would not use the ASTM E119 "to analyze the thermal-structural response of the WTC Towers." Why was this decision made? Why was the American public made to wait for these physical test results from UL if they would never actually be used "to analyze thermal structural response of the WTC towers"? On the other hand, if NIST did use the results of these physical tests in some meaningful way, this fact should be detailed in the report.

Even more important, though, is the fact that there are several reasons why the results of these physical tests actually are informative and should have been used by NIST to determine whether the Towers would have collapsed by fire alone. First, the floor assembly test specimens were not representative of the actual WTC floor conditions not because they had too much fireproofing, but because they had too little. The test performed by UL included four test specimens with "as built" fireproofing thickness of 0.75 inches on two specimens and further limited "as specified" fireproofing thickness of 0.5 inches on the others. No test specimen had fireproofing to represent the "as impacted" condition of 3.25 inches, reported in NCSTAR 1-6A, figure A-60, p 241.

Second, one specimen used in the physical tests had virtually no fireproofing applied. Specimen number 4 had no fireproofing applied to either the underside of the metal deck, or the bridging trusses. (See NCSTAR 1-6, p. 41, NCSTAR 1-6B p. 4) Therefore NIST cannot argue that the ASTM E119 tests were meant to show how important the fire proofing was in preventing building collapse. The fact that fireproofed floor specimens survived the ASTM E119 tests does not imply that unfireproofed floor specimens would not have survived similar tests. Physical tests should have been run that approximated the conditions NIST thought applied to the floors during the actual fire.

Third, NIST was not able to demonstrate or explain an intelligible mechanism for “estimated damage to the fireproofing due to debris impact.” Ultimately, NIST made a general assumption about fireproofing loss that either was not based on scientific results, or for which the logic was not explained.

Fourth, the ASTM E119 furnace profile is not representative of the real WTC fire condition because it involves longer and more severe fire times, not because it is less severe. In NCSTAR 1-6 (pp. 322, 338) it is indicated that the fires took 55 to 60 minutes to reach the south wall of WTC 1, leaving only about 45 minutes of fire time in the failure zone. This fire time is much shorter than the fire times utilized in the ASTM E119 tests, and even test specimen 4, with nearly no fireproofing applied, met all test requirements for 58 minutes.

Fifth, the visual data, which NIST used to confirm their assumption of floor sagging, is not valid for that purpose. NCSTAR 1-6, p 312, shows an example of the visual data NIST claims in support of floor sagging. If these photographs do, in fact, show floor sagging, they simultaneously repudiate the idea of floor sagging as a mechanism for pulling exterior columns inward, which is the main aspect of NIST’s collapse initiation scenario. To pull these columns inward, the sagging must curve inward, along the length of the floor panels, and the floor panels must remain connected to the exterior walls. However, the photos indicated show what would be sagging along the face of the building, requiring coordinated disconnection of the floors from the exterior wall panels, resulting in a highly unlikely continuous curve of sagging across many independent floor panels and connections. Such along-the-face sagging would not provide an inward pull force to the exterior columns.

For these reasons, the Requesters request reconsideration of all of the analysis and requests made in Section V.D. of the original Request, and consideration of the points made above. The Requesters further request that NIST not respond with more cursory argument and analysis, and that NIST actually address in detail the points raised by Requesters. The DQA and related guidelines require NIST to disseminate accurate, reliable, useful information, and in light of the foregoing, it has done no such thing with regards to the WTC Report.

E. The WTC Steel Temperature

In the original Request, the Requesters challenged NIST’s computer model steel temperatures of 700°C and higher in light of the WTC Report’s statement that NIST’s physical tests on the recovered steel samples “show no evidence of exposure to temperatures above 600°C for any significant time,” and “limited exposure if any above 250°C” (See NCSTAR 1-3, p. xli) (emphasis added). In the Response, NIST suggests that the steel samples saved were intended only for “determining the quality of the steel and, in combination with published literature, for determining mechanical properties as input to models of building performance.”

However, in NIST's Progress Report of May, 2003 (p. 30), the analysis of recovered steel was explained as a much more involved process, and the goals of the intended analyses were much broader:

NIST has catalogued 235 pieces of World Trade Center steel as of March 28, 2003. This includes a database with photographic records and member markings. These pieces represent a small fraction of the enormous amount of steel examined at the various salvage yards where the steel was sent as the WTC site was cleared. In addition, NIST has examined additional steel stored by the Port Authority at JFK airport and has transported 12 specimens to NIST. **NIST believes that this collection of steel from the WTC towers is adequate for purposes of the investigation.**

The NIST analysis of recovered WTC steel includes:

- collection and cataloging of the structural steel;
- documenting failure mechanisms and damage based on visual observations;
- determining the metallurgical and mechanical properties of steel, weldments, and connections for use in analyzing baseline structural performance, aircraft impact damage, and thermal-structural response to the fires until collapse initiation;
- **estimating the maximum temperature reached by available steel;**
and
- comparing measured steel properties with applicable material specifications.

The steel in NIST's possession includes 28 perimeter column panels for which locations have been identified in the towers, several from the impact zones; and 11 core columns for which locations have been identified in the towers, including two from the impact zones."

NIST also has samples of core columns (wide flange and built-up box columns) of two grades of steel. Ninety-nine percent of the core columns were fabricated from these two grades of steel.

These statements from the May 2003 progress report were reaffirmed in the December 2003 progress report. (See NIST Special Publication 1000-4, available at <http://wtc.nist.gov/media/PublicUpdateFinal.pdf>). Therein, NIST states that it "has in its possession about 236 pieces of WTC Steel". (See *id* at p.8) Additionally, "[r]egions of impact and fire damage were emphasized in the selection of steel for the Investigation." (*Id.*) "NIST has samples of all 14 grades of steel used in the exterior column-spandrel panels. It also has samples of two grades of steel used for the core columns (wide flange and built-up box columns) that represent steel used to fabricate 99 percent of the core columns. Most importantly, "NIST believes that this collection of steel from the WTC

Towers is adequate for purposes of the Investigation,” which included estimating the maximum temperature reached by the steel. (*See id.*) (emphasis in original).

From these progress reports by NIST, as well as other facts, the Requesters can understand the following:

1. Although the steel samples saved for testing were of limited quantity, an “enormous amount” of the WTC steel was examined either for or by NIST, and the samples selected were chosen for their identified importance in the investigation.
2. Contrary to NIST’s current statement, “estimating the maximum temperature reached by available steel” was stated to be a primary objective of the investigation of the recovered steel samples. This stated objective was repeated in NIST’s December 2003 progress report.
3. Contrary to NIST’s current statement, “documenting failure mechanisms and damage based on visual observations” was a primary objective of the investigation. This stated objective was repeated in NIST’s December 2003 progress report.
4. When this sifting and sorting of steel originally occurred, NIST believed “that this collection of steel from the WTC towers [was] adequate for purposes of the investigation.”
5. In NIST’s December 2003 progress report (p. 8), it was stated that “Regions of impact and fire damage were emphasized in the selection of steel for the Investigation.” This means that in December 2003 it appears that NIST believed it had adequate samples of steel available to perform physical tests and “estimat[e] the maximum temperature reached by available steel.”

Furthermore, the Response also states that “While NIST did not find evidence that any of the recovered core columns experienced temperatures in excess of 250 °C, it is not possible to extrapolate from such a small sample size to state that none of the core columns on the fire affected floors reached temperatures in excess of 250 °C.”

NIST’s response here is not satisfactory for the following reasons:

1. It is clear, from NIST’s earlier progress reports, that the steel samples used in the steel temperature analyses were taken from a much larger sample, and represented those areas of the buildings which had experienced significant fire and damage.
2. NIST has not shown any evidence that the steel available to the investigation team was of a “small sample size”. In fact, the 11 core column samples saved could be reasonably seen as representing as much as 23% of the total (47) core columns. Without a detailed explanation from NIST as to how the samples were saved from

the larger amount examined, and how the calculation of 1% was performed, the public cannot validate NIST's new claim that the samples were insufficient to accomplish the original stated objectives, including the maximum steel temperature determination.

3. As with NIST's new statements about the floor tests, noted above, the Requesters must now ask – Why did NIST perform the steel temperature tests, including the paint deformation test and the tests of steel microstructure, if the results would not be used in the final analyses? Will the American public be refunded the money spent on these tests?
4. The paint deformation test that NIST performed, and that resulted in the 250 °C value discussed, appears to be a measure of the surface temperature of the steel samples tested. NIST provides no explanation for how such a surface temperature result could have been extrapolated to provide meaningful data about the temperature of large masses of core columns, floor assemblies and exterior columns in the WTC towers. In order to validate NIST's new claim that the test results cannot be extrapolated to provide meaningful information, the details of the intended extrapolation protocol must be provided for public use. Indeed, it is difficult to imagine how a surface temperature of 250°C could be extrapolated in such a way that the inner temperature of the steel could ever have been greater than 250°C.
5. In November of 2004, one of the Requesters sent a letter to Dr. Frank Gayle of NIST, asking for information on the steel temperature tests performed, and the conclusions drawn from the results of those tests. This letter was never answered, but the October 2004 NIST WTC presentation, on which the letter was based, repeatedly stated that large quantities of the steel in the towers had “softened”. After receiving this letter, NIST delayed their report and removed the word “softened” from throughout their descriptions of the collapse initiation sequences. These facts indicate that NIST did not have any plan for extrapolating the results of steel temperature tests, and have never had a scientific basis for the claims made in the NIST WTC report about steel temperatures.

Finally, at the time of “collapse initiation” in the WTC Report, even NIST's own computer models challenge its collapse theory. In the Response is the statement “... the analytical models of the fire growth and spread are consistent with the observable data for the WTC towers.” Similarly in the WTC Report, after fire tests had been conducted and after comparing the results with modeling we read: “The quality of the simulations was deemed satisfactory.” (page xlii) Inspection of the temperature charts in NIST NCSTAR 1-5 (p. 112-127) reveals that, for WTC 1, the core areas of stories 92 to 99 (which spans the plane impact area and within which is the presumed collapse initiation region) had cooled down substantially prior to collapse. The core area was hottest at the 30- and 45-minute readings, yet collapse did not occur until 102 minutes had elapsed, by which time the environment of the core had dropped to be mainly in the range 100°C to 600°C. Roughly half the area is shown in shades of blue, indicating temperatures no higher than

150°C. If the temperature of the columns was still rising at the time of collapse, the column temperature would have been no higher than the environment temperature and the steel would obviously be far too strong to collapse. If the temperature of the columns was falling at the time of collapse, the columns had already survived the period when the steel was hottest. In this case, given that steel regains strength as it cools, it is clear that core collapse due to heat had become impossible.

The charts depicting the temperature of the columns (p. 144-157) confirm that the steel had become too cold to collapse. The highest core column temperatures are shown for stories 95, 96 and 97. On these floors the highest column temperatures were achieved at about 50 minutes and cooling occurred thereafter. We also see the perimeter columns were cool at collapse: most of the perimeter and core columns are depicted in blue and green, indicating temperatures ranging from 150°C to 350°C. At these temperatures the column steel would have from about 80% to 90% of its normal yield strength, according to the NIST chart (NIST NCSTAR 1-3, P. 111). At this strength, given the built in safety factor, approximately every second column could be removed and the tower would still stand. The hat truss and most of the perimeter, including four corners, were intact, forming a rigid structure, which would prevent the core from leaning, thus all core columns would have to give way simultaneously for collapse to occur. Clearly some additional factor was necessary to bring about collapse.

For all of the foregoing reasons, the Requesters hereby request reconsideration of the analysis and requests made in Section V.E. of the original Request. NIST has not adequately explained why it believes its physical steel temperature tests are essentially irrelevant. Again, why go to the trouble of physically testing the steel temperature if the results would not ultimately be used in the WTC Report's analysis? It is abundantly clear that NIST must reconcile the results of its physical tests with its computer models if it hopes to comply with the DQA and related guidelines with regards to objectivity and especially utility.

F. The Goal of the WTC Report and Its Overall Analysis

In the original Request, the Requesters questioned NIST's decision to halt its analysis at the point it calls "collapse initiation." NIST's response to this valid point is the clearest demonstration yet of the utter bankruptcy of the WTC Report. Specifically, in the Response NIST claimed that it was not required to analyze the entire collapse of the Twin Towers because "Once the collapse initiated, it is clear from the available evidence that the building was unable to resist the falling mass of the upper stories of the towers." However, following this logic to its ultimate conclusion, NIST's detailed analysis of collapse initiation was completely unnecessary because it is also clear from the available evidence that collapse initiated. The relevant question in both cases is: Why? NIST is required under the NCST Act, and under general moral principles as the official investigatory body, to provide a coherent, scientific explanation of why collapse initiated, and why the lower structure provided so little resistance to the collapse. Instead, NIST provided the American public a 10,000-page report analyzing collapse initiation, and then stops there because the available visual evidence allegedly shows us

everything we need to know about what happened after collapse initiation. That position is completely untenable and NIST should abandon it immediately if it hopes to salvage any shred of credibility.

As noted in the original Request, NIST was under a mandate by the NCST Act to “establish the likely technical cause or causes of the building failure.” See 15 U.S.C. § 7301(b)(2)(A). Accordingly, one of the specific goals stated in the WTC Report was to “Determine why and how WTC 1 and WTC 2 collapsed following the initial impacts of the aircraft.” (NCSTAR 1, p. xxxv) Confusingly, in the Response, NIST states that “it did not analyze the collapse of the towers,” and that it is “unable to provide a full explanation of the total collapse.” There could not be any clearer evidence that NIST has failed to live up to its duties under the NCST Act, and failed to satisfy its stated goal of determining “why and how” the buildings collapsed. NIST admits that it didn’t even try to analyze the collapse of the towers, and that it is “unable” to explain the total collapses to the American people.

NIST also claims that its report is useful because “codes and standards organizations have already begun taking action to adopt changes to building and fire codes and standards that respond directly to the NIST recommendations.” However, a review of the information available at <http://wtc.nist.gov/recommendations/recommendations.htm> reveals that most of the proposed building codes have in fact been rejected by the standards community. The fact that NIST has been able to ram through a handful of code changes reflects more on the influence its name carries than on the utility of its report. More importantly, NIST’s building code recommendations are actually harmful to the building community because they are based on extremely flawed science, as amply demonstrated in the original Request and this appeal letter. Unnecessarily onerous building codes inhibit growth because they make projects needlessly more expensive. NIST should withdraw all of its recommended building codes until it can produce a report that is not fundamentally flawed in so many respects.

The Requesters also cited numerous testimonies from firefighters and other first responders that indicate the presence of explosions during the building collapses. NIST writes off this testimony with the conclusory allegation that “taken as a whole” the firefighter interviews did not indicate that explosives played a role in the collapses. The Requesters wonder how many firefighters reporting explosions it would have taken for NIST to seriously consider the explosive demolition hypothesis for the collapses.

NIST has also refused to test for the presence of explosive residue because “such tests would not necessarily have been conclusive.” However, as discussed in detail in the Request and in this document, NIST conducted many tests that were “not necessarily conclusive.” Examples of such allegedly inconclusive tests are the physical steel temperature tests and the physical fire resistance tests. Clearly NIST thought these physical temperature and fire resistance tests, at the very least, ***might have been*** instructive on some aspect of the collapses. Why then would NIST not conduct a very simple lab test for the presence of explosive residue, even assuming the test would not

necessarily have been conclusive? More importantly, though, it is difficult to imagine a scenario in which a test for explosive residues would not be conclusive. If explosive residues are found in WTC debris, there is an extremely high likelihood that explosives were in fact used. Consider that Materials Engineering, Inc. has this to say about its thermite residue tests:

When thermite reaction compounds are used to ignite a fire, they produce a characteristic burn pattern, and leave behind evidence. These compounds are rather unique in their chemical composition, containing common elements such as copper, iron, calcium, silicon and aluminum, but also contain more unusual elements, such as vanadium, titanium, tin, fluorine and manganese. While some of these elements are consumed in the fire, many are also left behind in the residue. ...

MEi has conducted Energy Dispersive Spectroscopy (EDS) on minute traces of residue, identifying the presence of these chemical elements. **The results, coupled with visual evidence at the scene, provide absolute certainty that thermite reaction compounds were present, indicating the fire was deliberately set, and not of natural causes.**

(See <http://www.materials-engr.com/ns96.html>) (emphasis added)

Unless NIST can explain a plausible scenario that would produce inconclusive explosive residue test results, its stated reason for not conducting such tests is wholly unpersuasive.

Moreover, NIST must reconcile its statement that it found “no corroborating evidence to suggest that explosives were used” with its statement that it did not test for explosive residue which, if found, would suggest explosives were used. This point was clearly made in the original Request, but was ignored in NIST’s Response. The fact therefore remains that it is extremely easy to “find no evidence” when one is not looking for evidence.

Additionally, NIST must detail the initial evidence that would suggest that explosives were used which it believes needs “corroborating” before an explosive demolition hypothesis will be considered. If NIST meant to say it found “no evidence to suggest that explosives were used” then it must revise its report accordingly. Stating that NIST found “no corroborating evidence” suggests or implies that there exists a body of initial evidence that needs further “corroboration.” NIST must detail this existing body of evidence that needs further corroboration in order to comply with the DQA and related guidelines.

Therefore, the Requesters request and demand that NIST provide the Requesters and the American public with an adequate explanation, as they deserve, of the total and complete destruction of the WTC Towers. This is the only way NIST can ever hope to comply with the DQA, NIST IQS and OMB Guidelines. By stopping short, at the point

of collapse initiation, NIST has shirked its duty under the NCST Act of establishing the likely technical cause or causes of collapse. The explanation would necessarily involve a detailed examination of why and how the lower structure “was unable to resist the falling mass of the upper stories of the towers.” Such an explanation is required under the DQA and related guidelines.

G. Conclusion

Please contact the undersigned should you have any questions or concerns. We look forward to receiving a substantive response to our appeal, wherein NIST straightforwardly and completely addresses the serious scientific concerns raised in our Request and this Appeal.

Very truly yours,

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