August 17, 2007

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SUBJECT: WESTINGHOUSE AP1000 COMBINED LICENSE (COL) PRE-APPLICATION TECHNICAL REPORT 94 - REQUEST FOR ADDITIONAL INFORMATION (TAC NO. MD5501)

Dear Ms. Sterdis:

By letter dated May 4, 2007 (DCP/NRC1878), you submitted AP1000 Technical Report 94, "AP1000 Safeguards Assessment." The NRC staff has reviewed the application and has determined that additional information is required. Our questions are provided in the Enclosure. We discussed these issues with your staff on July 19, 2007. Your staff indicated that you would attempt to provide your response within 30 days from the date of this letter.

Please contact me at (301) 415-2304, if you have any questions on these issues.

Sincerely,

/RA/

Michael J. Miernicki, Project Manager
AP1000 Projects Branch 2
Division of New Reactor Licensing
Office of New Reactors

Project No. 740

Enclosure: Request for Additional Information

cc w/encl: See next page

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Request for Additional Information
APP-GW-GLR-066, AP1000 Technical Report 94, Rev.0,
"AP1000 Safeguards Assessment"

The following RAI's were developed using TR 49 (Enhancement Report), TR 94 (Safeguards Assessment Report), TR 96 (Interim Compensatory Measures), and TR 105 (Building and Structure Configuration, Layout, and General Arrangement Design Updates. The information requested is applicable to the review of all of these TR's.

TR94-NSIR-1 Provide a D-sized drawing that depicts all vital areas of the AP1000. Include a color-coded listing of the vital areas and a listing of vital components/equipment that may be cross-referenced against the drawing. Include in the diagram color-coded locations of the central alarm station, secondary alarm station, control room, and security related emergency power supplies.

TR94-NSIR-2 Provide inspection, test, analyses and acceptance criteria (ITAAC) that addresses the physical security hardware as described in NUREG-0800 SRP 14.3.12 taken credit for in the AP 1000 design. Submit as part of the AP 1000, Design Control Document, Chapter 14.3.12.

TR94-NSIR-3 Provide an analysis of the delay provided by the vital area walls when challenged by the design basis threat (DBT) of radiological sabotage. The DBT of radiological sabotage is required to be protected against as described in 10 CFR 73.1(a)(1). The vital area wall makes up one of the two required physical barriers as described in 10 CFR 73.55(c)(1). Provide the design of the locked and controlled access portals to vital areas within the protected area (i.e., door systems). Barriers, such as vital area walls, as defined in 10 CFR 73.2, should be designed such that the integrity of the wall is not lessened by any opening. Therefore the access portals to vital areas should be of such a design that they take advantage of the delay time provided by the vital area wall. Locks utilized in the design of the portals should be manipulative resistant as identified in RG 5.12; or equivalent. (Guidance for breaching calculations may be found in Regulatory Information Summary 2003-06 and 2005-09 and NUREG 6190.)

TR94-NSIR-4 Provide, at a minimum, conduit pathway design or other means of accommodating fiber-optics and electric utilities for design features such as detection aids and positive control measures at vital areas. Detection aids and positive control for vital areas are required as described in 10 CFR 73.55 (d)(7)(i)(B) and (D) respectively. Detection aids could be such items as balanced magnetic switches on vital area doors and positive control could include a means of personnel and vehicle access control such as electronic card or biometric readers at vital area doors.

TR94-NSIR-5 Provide information that ensures that security lighting will be designed to meet the performance requirements as described in 10 CFR 73.55(c)(5).

TR94-NSIR-6 Provide preliminary design information that indicates the approximate physical size and capacity of the secondary power supply. The onsite secondary power supply systems for alarm annunciator equipment and non-portable communications is required as described in 10 CFR 73.55(e)(1). Refer to NUREG/CR-0509, November 1979, and Inspection Procedure 81058 Security System Power Supply, May 9, 1984, for technical guidance. By considering the approximate capacity and subsequent physical size of the secondary power supply, greater assurance is gained that the location identified for the power supply will have adequate physical dimensions and that the capacity of the final power supply will be adequate.

TR94-NSIR-7 Provide recommended testing and maintenance for any physical barriers and equipment identified in the AP1000 design. Testing and maintenance of security systems is required as described in 10 CFR 73.55(g). Physical barriers are included in the scope of the security systems requiring testing and maintenance.

TR94-NSIR-8 Provide a more comprehensive listing of references in the TR's. The listed references neither includes 10 CFR 50.54 (security plans) nor 10 CFR 74 (material control and accounting). Include the NRC "acceptable for use" security engineering references. NRC Inspection Manual, Inspection Procedures: 81058 Security System Power Supply (05/09/84), 81066 Assessment Aids (05/09/84), and 81080 Detection Aids (05/09/84) could be used to identify NRC expectations. . These recommended additions do not comprise a comprehensive listing of additions.

TR94-NSIR-9 Provide the exact location of the central alarm station and the secondary power supply. Both the central alarm station and the secondary power supply are required to be in an area designated as a vital area as described in 10 CFR 73.55 (e)(1). Provide the design of the location and design (e.g., within walls non–accessible, hardened conduit, fire resistant) of the cabling pathways for the required secondary power supply.

TR94-NSIR-10 Provide the design of the security features related to the rapid ingress, egress, and alarming of vital area emergency exits. Requirements for the rapid ingress or egress for vital areas are described in 10 CFR 73.55(7)(i)(D) and73.55(7)(i), and alarm requirements for all emergency exits in the vital area are described in 10 CFR 73.55(e)(3).

TR94-NSIR-11 Provide the location and design of the barriers for all unattended openings that cross or intersect a vital area boundary. To preclude unauthorized vital area personnel access, those unattended openings that have dimensional characteristics of 96 square inches of cross-sectional open area and greater than six inches in any one dimension that cross a vital area boundary, should have barriers installed. Barriers are defined in 10 CFR 73.2. Requirements for barriers are as described in 10 CFR 73.55(c). Regulatory guidance for unattended openings may be found in Regulatory Guide 5.65 and Regulatory Information Summary 2005-04.

TR94-NSIR-12 Provide additional information that specifies the minimum bullet resistance for the main control room and central alarm station, and the design of the bullet resistance and bullet resistant features of the main control room and central alarm station. Provide information that can clearly indicate that the central alarm station is located and designed in such a manner that the interior is not visible from the protected area. Provide the description of the design features of the central alarm station that would assist a combined license applicant referencing the AP1000 design to meet the "no single act" requirement. Minimum bullet resistance specified should be UL 752 Level IV or NIJ Standard 0108.01 Type III. The requirements for bullet resistance of the control room and central alarm station are described in 10 CFR 73.55(c)(6) and (e)(1), respectively. Requirement for the interior of the central alarm station not to be viewed from the protected area is described in 10 CFR 73.55(e)(1). The requirement that the central alarm station shall be located so that no single act can remove the capability of calling for assistance or otherwise responding to an alarm is described in 10 CFR 73.55(e)(1).

TR94-NSIR-13 Provide scenario analyses based upon a standard set of NRC developed DBT scenarios. The scenarios utilized in TR-94 do not adequately cover the complete breadth (i.e., do not include essential adversary tactics, attributes and characteristics) of the design basis threat (DBT) of radiological sabotage. To provide a comprehensive evaluation of the AP1000 physical protection system design against the DBT, a set of standard scenarios, developed by the NRC staff for the purpose of being utilized by design certification and combined license applicants when performing a security assessment, should be utilized. (The scenarios have been determined to be safeguards information and will be provided upon request from the NRC.)

TR94-NSIR-14 Provide D-size color drawings for all drawing included in technical reports (*TR 49 (Enhancement Report), TR 94 (Safeguards Assessment Report), TR 95, TR 96 (Interim Compensatory Measures), and TR 105 (Building and Structure Configuration, Layout, and General Arrangement Design Updates)* submitted. (The current 8" X 10" documents are difficult to read. TR 105 drawings are grey-highlighted and are very obscure.)

TR94-NSIR-15 Provide detail (i.e., detection and delay characteristics), sufficient to perform a more comprehensive security assessment, of the PIDAS. In addition, locate the PA barrier 360 feet (minimum as described in RG 4.7) from vital areas, with vehicle barrier systems, (at minimum standoff, as described in NUREG/CR-6190), and a number of armed responders, to enable a more comprehensive evaluation (i.e., scenario analyses) of the proposed physical protection system.

TR94-NSIR-16 Provide design characteristics and details of physical barriers. Describe design characteristics of physical barriers in detail to include: dimensions, weights, explosive breaching charge calculations required to breach barrier, delay times associated with each barrier, construction materials, bullet resistance ratings, blast resistant ratings, hinges, locks, anti-tamper features, and anti-manipulation features.

TR94-NSIR-17 Provide design details of inner delay boundary fences. Describe design characteristics of delay barriers in detail to include: dimensions, explosive breaching charge calculation/analyses detailing what is required to breach delay fencing, delay provided by these fences (for cutting and explosives breach) and construction materials.

TR94-NSIR-18 Provide details of distances traveled between PIDAS, PA Fence, Red Zone Fence and nearest exterior door. Describe details of the time required to traverse each delay fence, distances between fences and nearest exterior door, explosive breaching charge calculations, cutting times, alarm annunciation, and details of the PIDAS for each standard scenario.

TR94-NSIR-19 Provide details of each exterior door. Describe design characteristics of exterior doors (pertinent to the security assessment) to include: dimensions, weights, explosive breaching charge calculations for breaching doors, construction materials, bullet resistance ratings, blast resistant ratings, hinges, locks, anti-tamper features, delay afforded and anti-manipulation features.

TR94-NSIR-20 Provide details of external security force firing positions. Describe design characteristics of external security firing positions, in detailed D-size drawings, to include: fields of fire, rates of fire, restricted fields of fire, elevation of the firing positions, lines-of-sight, traverse and azimuth limits of the weapon system, construction materials, hardening design, bullet-resistance ratings, human fragility limits, gun-port sizes and design, primary and secondary communications, and fields of view.

TR94-NSIR-21 Provide details of internal armed responder designated response positions. Describe design characteristics of internal armed responder designated response positions, in detailed D-size drawings, to include: fields of fire, rates of fire, restricted fields of fire, danger fire zones, clear fire zones, human fragility limits, elevation of the firing positions, lines-of-sight, traverse and azimuth limits of the weapon system, construction materials, hardening design, bullet-resistance ratings, gun-port sizes and design, primary and secondary communications, and fields of view.

TR94-NSIR-22 For each scenario analyzed; provide detailed D-size, color-coded drawings and explanation of adversary paths and timelines from the PA boundary fence to the target area(s) or area of neutralization. Provide D-size, color-coded drawings of adversary paths and identify: adversary routes and timelines, response force timelines, door openings, hallway sizes, stairs, barriers, delay fences, explosive breaching charge calculations, delay times, probability of detection, probability of interruption, probability of neutralization (or high assurance conditions (i.e., adequate number of appropriately armed and trained responders, to protected positions, in a timely manner, to neutralize the DBT), physical security system probability of effectiveness, adversary

characteristics/attributes/tactics and capabilities, and adversary equipment.

TR94-NSIR-23 Provide detailed analysis of blast-resistant doors. Describe design characteristics of blast-resistant doors to include: explosive breaching charge calculations for breaching, composition, dimensions, locking devices, hinges, expected delay provided and opening dimensions.

TR94-NSIR-24 Provide, for each scenario, a color-coded, D-size drawing and explanation/description associated with detection, assessment, and response of all armed responder paths and positions to include: consideration of security system delay associated with detection in the timeline analysis (i.e., delay in the detection of adversary – to – assessment of adversary – to – response to adversary, and communication of assessed adversary), response of protective force to the assessed adversary, responder routes, rooms, door openings, hallway sizes, stairs, barriers, delay times, probabilities of neutralization (or high assurance conditions (i.e., adequate number of appropriately armed and trained responders, to protected positions, in a timely manner, to neutralize the DBT) probabilities of detection, probabilities of physical security system effectiveness, probabilities of interception, assumed armed responder characteristics and capabilities, assumed armed responder equipment, and details of firing zones (i.e., fields of fire) of the physical protection system, identify clear and danger zones of fire, and physical impediments for responders (in route and at firing positions), to provide a more comprehensive security assessment.

TR94-NSIR-25 Provide a cross reference that identifies all security related changes in TR 105. (TR 105, as currently written, neither explicitly points out, nor identifies, the security related changes.)

TR94-NSIR-26 Provide an analyses that considers the implementation of advanced security system technologies and concepts (i.e., cold smoke, sticky foam, munitions based access denial system (MBADS), remotely operated weapons system (ROWS)), as described in chapters 4 and 6 of NUREG/CR1345, Rev. 1, “Nuclear Power Plant Design Concepts for Sabotage Protection.” (The draft Chapters will be provided upon request from the NRC.)