Enclosure 1

TAC 15-002

Evaluation of the Proposed Change

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A. Summary Description

This evaluation supports a planned land sale of a portion of the Vallecitos site. The proposed sale involves land on the northernmost boundary that has not been used for any nuclear related activities but does constitute a portion of the "site", as defined in the Technical Specifications (TS) and used as an indirect input into the annual average dilution-dispersion factor (Chi/Q) used to determine the Nuclear Test Reactor (NTR) Stack Release Rate Limits.

B. Detailed Description

TS 1.2.26 defines "Site" as follows: *"The area (approximately 1600 acres) within the confines of the Vallecitos Nuclear Center (VNC) owned and operated by the licensee."* The site acreage is not explicitly used in any of the analyses supporting the design and licensing basis of NTR and so is being removed.

TS 3.4.3.2 and Table 3-3 provide stack release rate limits that are selected, in part, based on the average annual Chi/Q. Because the characteristic parameters used to calculate the average annual Chi/Q are site specific meteorological data and the 16 sector distances from the NTR stack to the site boundary, the stack release limits have a second order dependence on the 16 boundary distances, including the six boundary distances impacted by the reduction in site acreage. To judge the adequacy of the existing average annual Chi/Q for application to the reduced site acreage, the Chi/Q value was recalculated and then compared to the existing value credited in the NTR Safety Analysis Report (SAR). The result of this adequacy review demonstrates the existing Chi/Q value in the NTR SAR remains bounding and TS 3.4.3.2 and Table 3-3 can remain unchanged.

C. Technical Evaluation

A set of site characteristics are important to the design and licensing basis of the NTR. These include geography, geology, population distribution, natural phenomena, etc., which are described in the NTR SAR. The principal licensing basis issue related to site size (total acreage) would be the dose to the public that could result from both normal operation and any postulated accident. The normal effluent and accident dose analysis for NTR as described in the SAR, and performed in accordance with regulatory requirements and guidance, utilizes a conservative combination of site specific meteorological data, as well as distance between release point (NTR stack) and site boundaries. This analysis forms the basis for stack release limits in TS 3.4.3.2 and is further described in the TS Bases 3.4.4 and in SAR Section 6.4.

A review of GEH documentation supporting the NTR SAR indicates the average annual Chi/Q was calculated with the RALOC code developed (and later retired) by GE prior to the issuance of formal guidance by the NRC which defined acceptable methods to generate average annual atmospheric dispersion factors. The method used in RALOC was based

on personal communication with the NRC. Major assumptions used in the RALOC analysis were as follows:

1. Distances to the 16 sector nearest boundary points, starting at the north sector and proceeding clockwise are (meters): 2302, 2390, 1926, 1615, 955, 622, 522, 510, 515, 597, 756, 636, 622, 634, 749, and 1109.
2. Building 105 cross-sectional area, for building wake effect is 281 m^2.
3. Stack height Above Ground Level (AGL, meters): 0 m.
4. Pasquill type meteorological condition designations.
5. The sector average Chi/Q values are used instead of centerline values.
6. No credit taken for plume depletion.

Since the prior calculation methods were outdated and could not be repeated, the adequacy of the exiting Chi/Q geometry was evaluated by calculating a conservative average annual Chi/Q for the NTR stack following the guidance of Regulatory Guide 1.111 and using the XOQDOQ code. The Chi/Q geometry inputs were evaluated and indicated that the six sectors impacted by the land sale are the NW sector sweeping clockwise to the ENE sector. The adequacy review assumed a bounding distance to the NTR of 510 meters (which was the minimum distance used in the RALOC analysis) for those six sectors along with the remaining ten sector distances used in the original analysis. In general, the adequacy review applied the same assumptions as the RALOC analysis with the following exceptions:

1. Distances to the 16 sector nearest boundary points, starting at the north sector and proceeding clockwise are (meters): 510, 510, 510, 510, 955, 622, 522, 510, 515, 597, 756, 636, 622, 634, 510, and 510.
2. An above grade NTR stack height of 13.7 meters.
3. An above grade Building 105 height of 11.0 meters.
4. An average stack exit velocity of 7.2 meters/second.
5. A mixed mode release for a release point above the height of adjacent structures (per RG 1.111, Revision 1).

The adequacy review then evaluated the Chi/Q results at those boundary distances and beyond the boundary at various increments up to 50 miles using site meteorology from the original analysis. The sector results of the adequacy review case showed the most limiting annual average Chi/Q is 2.2E-11 sec/ml occurring in the Southwest (SW) Sector. The adequacy review annual average Chi/Q is bounded by the current GE NTR annual average of 3.48E-11 sec/ml by approximately 37%. In addition, the adequacy review results showed that all annual average Chi/Qs for distances up to 50 miles are less than the calculated value of 2.2E-11 sec/ml; thus, it was demonstrated that a more limiting Chi/Q does not occur beyond the assumed boundary distances.

Therefore, the NTR SAR annual average Chi/Q remains bounding and is adequate for continued use as the bases for the stack action levels (as described in Section 6.4 of the NTR SAR).

D. Regulatory Evaluation

The definition of "Site" as contained in NTR TS 1.2.26 is an administrative term to convey the land owned and controlled by the licensee. The quantity of land is less important than specific attributes such as distance between facility release points and site boundary. These parameters are identified and controlled the same as other TS items. As such, the removal of the acreage detail in the site description has no regulatory impact.

The change in site boundary, however, does affect key inputs into the analysis of compliance with 10 CFR Part 20. This analysis was repeated utilizing current, approved methodology (RG 1.111) with appropriate inputs reflecting the proposed land sale. The original meteorological data inputs were used as they were based upon historical data from a site-based meteorological tower that is no longer operational. Use of more recent data from active meteorological stations in the region was evaluated but those data sets were not applicable to the site as the mountainous terrain causes significant variation in wind speed and direction from site to site.

No Significant Hazards Consideration Determination

The change to the Vallecitos site to reflect the proposed land sale and the resulting amendment to the TS have been evaluated to ensure that there is no impact on the facility operation or safety.

GEH has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment", as discussed below:

1) Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The amendment removes extraneous information (site acreage) from the administrative section of the TS. Site dimensions and characteristics that have a significant bearing on the facility safety evaluation were evaluated and a new site dilution-dispersion factor derived using current methodology. This analysis demonstrated that the current TS limits continue to ensure compliance with regulatory requirements.

   Therefore, the change in site size has no impact on either probability or consequences of any accident previously evaluated.

2) Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed land sale and resulting amendment to the TS will not change the design function or operation of any structures, systems, or components of the NTR. No new failure mechanisms, malfunctions, or accident initiators are introduced by the change. Because the impact of the acreage reduction does not impact the facility itself, and operation of the facility will remain unchanged, no unanalyzed accident conditions are associated with the change.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3) Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The amendment to the TS resulting from the proposed land sale maintains margins defined in the design and analysis of the facility. Critical parameters associated with the size of the site are still conservatively applied in the analyses and reflected in the TS limits.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, GEH concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly a finding of "no significant hazards consideration" is justified.

E. Environmental Consideration

The TS amendment developed in support of the proposed land sale ensures that there will be no significant change in the types, or significant increase in the amounts, of any effluents that may be released offsite; nor will there be any significant increase in individual or cumulative occupational exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.