

PMTurkeyCOLNPEM Resource

From: Comar, Manny
Sent: Monday, August 31, 2015 3:34 PM
To: TurkeyCOL Resource
Subject: FW: Revised Turkey Point ITAAC on grouting
Attachments: compare3.docx; RAI 2 5 4-26 ITAAC-meeting edits rgs2.docx

From: Karas, Rebecca
Sent: Wednesday, August 26, 2015 3:18 PM
To: Comar, Manny
Cc: Cozens, Ian; Weisman, Robert; Rodriguez, Ricardo
Subject: FW: Revised Turkey Point ITAAC on grouting

Manny,

This is the revised draft ITAAC that Bob is reviewing for us in advance of the public meeting (which we need to make public with our proposed changes prior to the meeting). Bob indicates this should be ticketed in the OGC mailroom

Rebecca Karas, Chief
Geoscience and Geotechnical Engineering Branch 1
Division of Site Safety and Environmental Analysis
Office of New Reactors
U.S. Nuclear Regulatory Commission
Phone: 301-415-7533
Fax: 301-415-5397

From: Karas, Rebecca
Sent: Monday, August 24, 2015 2:40 PM
To: Welch, Christopher <Christopher.Welch@nrc.gov>; Cozens, Ian <Ian.Cozens@nrc.gov>; Weisman, Robert <Robert.Weisman@nrc.gov>; Spencer, Michael <Michael.Spencer@nrc.gov>
Cc: Rodriguez, Ricardo <Ricardo.Rodriguez@nrc.gov>; Candelario, Luisette <Luisette.Candelario@nrc.gov>; Xi, Zuhan <Zuhan.Xi@nrc.gov>
Subject: RE: Revised Turkey Point ITAAC on grouting

Attached are the edits from today's meeting. Both a compare version from the version we looked at today, and also the master file containing tracked changes from FPL's submitted ITAAC.

Rebecca Karas, Chief
Geoscience and Geotechnical Engineering Branch 1
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From: Welch, Christopher
Sent: Wednesday, August 19, 2015 9:39 AM
To: Karas, Rebecca <Rebecca.Karas@nrc.gov>; Cozens, Ian <Ian.Cozens@nrc.gov>; Weisman, Robert

<Robert.Weisman@nrc.gov>; Spencer, Michael <Michael.Spencer@nrc.gov>

Cc: Rodriguez, Ricardo <Ricardo.Rodriguez@nrc.gov>; Candelario, Luisette <Luisette.Candelario@nrc.gov>; Xi, Zuhan <Zuhan.Xi@nrc.gov>

Subject: RE: Revised Turkey Point ITAAC on grouting

My only comment would be to add a minimum distance in the first bullet of the ITA.

Chris

From: Karas, Rebecca

Sent: Tuesday, August 18, 2015 10:07 AM

To: Welch, Christopher; Cozens, Ian; Weisman, Robert; Spencer, Michael

Cc: Rodriguez, Ricardo; Candelario, Luisette; Xi, Zuhan

Subject: Revised Turkey Point ITAAC on grouting

Based on our discussion yesterday, Zuhan, Luisette and I modified the ITAAC. See what you think and provide any comments. Attached are both a compare file from the last file we had sent for OGC review, and also the master file, which tracks changes from FPL's submitted ITAAC.

Rebecca Karas, Chief

Geoscience and Geotechnical Engineering Branch 1

Division of Site Safety and Environmental Analysis

Office of New Reactors

U.S. Nuclear Regulatory Commission

Phone: 301-415-7533

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Hearing Identifier: TurkeyPoint_COL_NonPublic
Email Number: 1398

Mail Envelope Properties (a3caadb2c80e4bb3be455ecc2449b712)

Subject: FW: Revised Turkey Point ITAAC on grouting
Sent Date: 8/31/2015 3:34:13 PM
Received Date: 8/31/2015 3:34:14 PM
From: Comar, Manny

Created By: Manny.Comar@nrc.gov

Recipients:
"TurkeyCOL Resource" <TurkeyCOL.Resource@nrc.gov>
Tracking Status: None

Post Office: HQPWMSMRS05.nrc.gov

Files	Size	Date & Time
MESSAGE	3383	8/31/2015 3:34:14 PM
compare3.docx	33887	
RAI 2 5 4-26 ITAAC-meeting edits rgs2.docx		40927

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

The following ITAAC will be added to the COLA, Part 10, Appendix B:

Table 3.8-6
ITAAC for Seismic Category I Structure Foundation Grouting⁽¹⁾

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
<p>Inside the region defined by the diaphragm walls, drilling and pressure grouting will be performed such that:</p> <ul style="list-style-type: none"> any potential voids between El. -35 ± 2 feet and El. -60 ± 2 feet (the grouted zone) are grouted, and the maximum equivalent spherical diameter of potential voids between El. -60 ± 2 feet and El. -110 ± 2 feet (the extended grouted zone) is less than 20 ± 2 feet. 	<p>i. Testing and analysis will be performed through a grout test program to define grout closure criteria for both the grouted zone and extended grouted zone, including criteria to indicate:</p> <ul style="list-style-type: none"> that the grout consistency enables it to permeate potential voids surrounding the vicinity of the borehole when the borehole and vicinity has been filled with grout and filling may cease when the presence of nearby voids is suspected, necessitating tertiary or quaternary boreholes <p>ii. Inspections and analysis will be performed of both the as-built locations and spacing, and the grout closure data:</p> <ul style="list-style-type: none"> of the primary and secondary grout boreholes [and if nearby voids are suspected to be present, tertiary and quaternary boreholes] between El. -35 ± 2 feet and El. -60 ± 2 feet (the grouted zone), and the primary grout boreholes 	<p>i. The grout closure acceptance criteria, when used in conjunction with the specified borehole spacing, will ensure any minimize the potential for any voids between El. -35 ± 2 feet and El. -60 ± 2 feet (the grouted zone) are grouted, and will ensure that any minimize the potential that any voids remaining between El. -60 ± 2 feet and El. -110 ± 2 feet (the extended grouted zone) are less greater than 20 ± 2 feet</p> <p>ii. Any potential voids between El. -35 ± 2 feet and El. -60 ± 2 feet (the grouted zone) Grout closure criteria are grouted, any potential voids remaining between El. -60 ± 2 feet and El. -110 ± 2 feet (the extended grouted zone), are less than 20 ± 2 feet, and they meet for all grout boreholes and meet the following requirements:</p> <ul style="list-style-type: none"> spacing of primary grout boreholes is less than or equal to 20 ± 2 feet on center, and secondary grout boreholes are offset from primary grout boreholes such that a secondary grout borehole is at the center of the square formed by four adjacent primary grout boreholes, and spacing of tertiary and quaternary grout boreholes, if required due to suspected

Comment [RR1]: Define void in FSAR as contrasted with fractures or vugginess

Comment [RR2]: A survey could be one method of inspection

	<p>between El. -60 ± 2 feet and El. -110 ± 2 feet (the extended grouted zone).</p>	<p>presence of nearby voids, are located based on engineering evaluation.</p>
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Note:

(1) All elevations are presented in the North American Vertical Datum of 1988 (NAVD88).

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The following ITAAC will be added to the COLA, Part 10, Appendix B:

Table 3.8-6
ITAAC for Seismic Category I Structure Foundation Grouting⁽¹⁾

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
<p><u>Inside the region defined by the diaphragm walls, drilling and pressure grouting will be performed per the grout program specifications established as part of the grout test program such that:</u></p> <ul style="list-style-type: none"> — <u>a. Any potential voids between El. -35 ± 2 feet and El. -60 ± 2 feet (the grouted zone) inside the region defined by the diaphragm walls are grouted, and,</u> — <u>The maximum equivalent spherical diameter of potential voids between El. -60 ± 2 feet and El. -110 ± 2 feet (the extended grouted zone) is less than 20 ± 2 feet inside the region defined by the diaphragm walls.</u> 	<p><u>Inspections will be performed of the as-built location of the primary and secondary grout boreholes [and if necessary tertiary and quaternary boreholes] and the grout borehole closure data for:</u></p> <ul style="list-style-type: none"> i. <u>4) Testing and analysis will be performed through a grout test program to define Ggrout closure criteria for the grouted zone (between El. -35 ± 2 feet and El. -60 for both the grouted zone and extended grouted zone, including criteria to indicate: <ul style="list-style-type: none"> • <u>± 2 feet) are defined in the grout test program through a grout test program,</u> • <u>that the grout consistency enables it to permeate potential voids surrounding the vicinity of the borehole</u> </u> • <u>when the borehole and vicinity has been filled with grout and filling may cease</u> • <u>when the presence of nearby voids is suspected, necessitating tertiary or quaternary boreholes</u> 	<ul style="list-style-type: none"> i. <u>A report exists and concludes that [The grout closure acceptance criteria, when used in conjunction with the specified borehole spacing, will ensure any minimize the potential for any voids between El. -35 ± 2 feet and El. -60 ± 2 feet (the grouted zone) are grouted, and minimize the potential for any voids remaining and are less than 20 ± 2 feet between El. -60 ± 2 feet a El. -110 ± 2 feet (the extended grouted zone) are greater than 20 ± 2 feet</u> ii. <u>A report exists and concludes that grouting program closure criteria is met such that an potential voids between El. -35 ± 2 feet and El. -60 ± 2 feet (the grouted zone) are grouted, and are less than 20 ± 2 feet between El. -60 ± 2 feet and El. -110 ± 2 feet (the extended grouted zone), and that [The primary and secondary grout boreholes [and if necessary tertiary and quaternary boreholes] Grout closure criteria are met for all grout boreholes and meet the following grouting program requirements:</u> <ul style="list-style-type: none"> • <u>spacing of primary grout boreholes is less than or equal to 20 ± 2 feet on center, a</u>

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ii. Inspections and analysis will be performed of both the as-built locations and spacing, and the grout closure data:

- of the primary and secondary grout boreholes [and if necessary nearby voids are suspected to be present, tertiary and quaternary boreholes] between El. -35 ± 2 feet and El. -60 ± 2 feet (the grouted zone), and
- the primary grout boreholes between El. -60 ± 2 feet and El. -110 ± 2 feet (the extended grouted zone).

Inside the region defined by the diaphragm walls, drilling and pressure grouting are performed per grout program specifications established as part of grout test program for:

— Primary and secondary grout boreholes between El. -35 ± 2 feet and El. -60 ± 2 feet (and if necessary tertiary and quaternary per closure criteria), and

- (i) —
- (ii) Primary grout boreholes down to El. -110 ± 2 feet.

2) An as-built survey will be performed to confirm the spacing of grout boreholes.

- secondary grout boreholes are offset from primary grout boreholes such that a secondary grout borehole is at the center of the square formed by four adjacent primary grout boreholes, and

- spacing of tertiary and quaternary grout boreholes, if these are necessary per closure criteria due to suspected presence of nearby voids, are located based on engineering evaluation, and

1) Primary and secondary grout boreholes [and if necessary tertiary and quaternary grout boreholes] are drilled and pressure grouted between El. -35 ± 2 feet and El. -60 ± 2 feet. Grout closure criteria for the grouted zone are met as defined in the grout test program.

2) The as-built survey of the grout layout

- Confirms that spacing of primary grout boreholes is less than or equal to 20 ± 2 feet center.

- Confirms that secondary grout boreholes are offset from primary grout boreholes such that a secondary grout borehole is at the center of the square formed by four adjacent primary grout boreholes.

- Confirms the spacing of tertiary and quaternary grout boreholes if these are necessary per closure criteria.

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Comment [RR2]: A survey could be one method of inspection

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Note:
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