

SSER

Task: Allegations A-138 and A-159

Reference Number: 4-84-A-06-33 and 4-84-A-06-54

Characterization: It has been alleged that the review of the soils packages conducted by the Quality Assurance Installation Review Group (QAIRG) revealed several deficiencies during the review of approximately the first four feet of backfill; the work was then stopped before completion.

Assessment of Allegation: The NRC staff review of the backfill records revealed that the backfill operation was divided into seven placement fills surrounding the foundation walls. The in-place soil density was required to be tested in accordance with ASTM-D-1556, ASTM-D2167, ASTM-D2922 or any other method suitable to ensure that the backfill has been properly compacted. One test with an in-place relative density of 75 percent was required to be made in each layer for every 20,000 square feet placed in one day.

The Ebasco soils inspector conducted a final review of 100 percent of the soils packages for completeness and conducted a partial, random-sample review of the packages for technical accuracy. He stated that he did not find or identify any technical problems or missing records. The NRC staff conducted a review of the in-place density tests for approximately 25 percent of the total soils packages for the seven fill areas. The NRC staff discovered during the review of five of the seven fill areas that the location of the in-place density test noted on the test report did not always fall within the fill area that was stated on the test report. Additionally, it was found that some of the in-place density test reports were located in the wrong soils package. The following table summarizes the results of the reviews:

	<u>Fill #1</u>	<u>Fill #2</u>	<u>Fill #3</u>	<u>Fill #4</u>	<u>Fill #7</u>
No. of Test Sample Reports Reviewed	33	29	52	59	55
Documents Filed in Wrong Package	0	1	5	0	1
Incorrect test Location on Test Sample Report	6	21	0	2	10

The NRC staff also reviewed the records for the in-place testing frequency of each layer of backfill that was placed and compacted around the foundation structure. This review revealed that there was no documentation covering either the first three feet of backfill in fill area #7 or the first five feet of backfill in fill area #5. The in-place density tests for fill area #7 were found at the GEO Office (test lab), but no record of inspection was found for the first three feet of fill area #7.

The NRC review of approximately 25 percent of all the soils packages indicated that the final review conducted by Ebasco was incomplete. The records for fill area #7 were in the GEO Office, but showed no evidence of review, nor could records be found for the first five feet of fill area #5. The soils packages were not all reviewed for technical accuracy based on the fact that deficiencies found during this review should have been discovered during Ebasco's final review. The Ebasco reviewer of these soils packages was involved as a soils QC Inspector almost from the beginning of the backfill operation to its conclusion. Based on this fact, the NRC staff concludes that he was qualified to conduct a records review.

The safety significance of this item is that some fill areas are in question as to the placing and compaction of the backfill because of the missing documents. It is the judgment of the NRC staff that analysis considering the areas of missing records would indicate there is not a safety problem. However, this shall be substantiated by LP&L. This indicates that inadequate attention was given to the compilation of quality records and to conducting satisfactory record reviews.

Potential Violations: The missing and misfiled documents indicate that there is some doubt about the validity of the placement, compaction and inspection of some backfill material, based on the records available, and that criteria XVII of Appendix B to 10 CFR 50 may have been violated.

Actions Required: LP&L shall resolve the issues raised in this allegation in one of the following three ways:

- (1) prior to fuel loading, LP&L shall conduct a review for completeness and technical adequacy of the soils packages to find what documents are missing and correct any technical deficiencies found in the documents which would fully establish that the backfill material was satisfactorily placed, compacted and inspected; or
- (2) prior to fuel loading, LP&L shall wish to complete actual soil testing such as with penetration tests or other methods in the soil volumes where records are missing; or
- (3) resolve the record problem after fuel loading if LP&L can justify by analysis that missing records here are not a safety problem.

One of these actions shall be completed before fuel loading since the capability of the soil backfill must be known for seismic load conditions.

References:

1. Backfill documentation in volume 1 for each of the seven fill areas.
2. LOU 1564.482 Ebasco Specification "Filter & Backfill; Seismic Class I" Revision 6.

3. LOU 1564 G 497S02 "General Backfill Plan & Sections" Rev. 3.
4. LOU-1564 G 497S01 "General Backfill Plan & Section."
5. Summary of the Dates that Test Reports were Reviewed.

Statement Prepared By: J. K. Devers Date

Reviewed By: \_\_\_\_\_  
Team Leader \_\_\_\_\_ Date \_\_\_\_\_

Reviewed By: \_\_\_\_\_  
Site Team Leader(s) \_\_\_\_\_ Date \_\_\_\_\_

Approved By: \_\_\_\_\_  
Task Management \_\_\_\_\_ Date \_\_\_\_\_

## Attachment 1

## Reference 5.

## Summary of the Date of Test Reports that were Reviewed

Test Elev.	Fill #1	Fill #2	Fill #3	Fill #4	Fill #5	Fill #6	Fill #7
-41.25				10/13/76			
-40.75							
-40.50			6/7/76	10/14/76			
-40.25				5/18/76			
-39.50			6/7/76				8/24/76
-39.25				5/19/76		6/2/76	
-39.00						8/6/76	8/24/76
-38.75	4/26/76		9/16/76				
-38.50			6/8/76				8/24/76
-38.25				5/20/76		6/3/76	
-38.00							8/23/76
-37.75			9/16/76			8/9/76	
-37.50	4/27/76		6/8/76	10/14/76	10/13/76	8/9/76	
			9/1/76				
-37.25	10/18/76	10/21/76	9/16/76	5/20/76	10/11/76	6/3/76	6/11/76
			9/17/76		10/13/76	9/9/76	
						9/10/76	
-37.00			9/1/76	5/19/76	10/14/76		8/24/76
							9/3/76
-36.75	10/19/76	10/21/76	9/17/76	10/14/76	10/11/76	9/9/76	9/8/76
	10/20/76	10/23/76			10/12/76	9/10/76	9/9/76
					10/14/76		
-36.50			6/9/76			9/9/76	8/24/76
-36.25	10/25/76	10/21/76	9/14/76	10/14/76	5/27/76	6/4/76	6/11/76
				10/19/76	10/12/76		6/15/76
-36.00	10/19/76		9/2/76				8/24/76
-35.75			9/14/76	5/20/76	10/12/76	9/13/76	
			9/17/76		10/13/76		
-35.50			6/9/76				9/3/76
							9/7/76
							9/9/76
-35.25	10/23/76		10/14/76	10/15/76	5/21/76	6/4/76	6/14/76
						9/9/76	9/9/76
						9/10/76	9/10/76
						9/13/76	
-35.00			9/2/76	10/15/76			

The dates indicated when the fill area was placed, compacted and tested; each date may indicate more than one test.

Document Name:  
SSER X A-138

Requestor's ID:  
STCINDY

Author's Name:  
J. K. Devers

Document Comments:  
A-159

SSER

Task: Allegations A-138 and A-159

Reference Number: 4-84-A-06-33 and 4-84-A-06-54

Characterization: It has been alleged that the review of the soils packages conducted by the Quality Assurance Installation Review Group (QAIRG) revealed several deficiencies during the review of approximately the first four feet of backfill; the work was then stopped before completion.

Assessment of Allegation: The NRC staff review of the backfill records revealed that the backfill operation was divided into seven placement fills surrounding the foundation walls. The in-place soil density was required to be tested in accordance with ASTM-D-1556, ASTM-D2167, ASTM-D2922 or any other method suitable to ensure that the backfill has been properly compacted. One test with an in-place relative density of 75 percent was required to be made in each layer for every 20,000 square feet placed in one day.

The Ebasco soils inspector conducted a final review of 100 percent of the soils packages for completeness and conducted a partial, random-sample review of the packages for technical accuracy. He stated that he did not find or identify any technical problems or missing records. The NRC staff conducted a review of the in-place density tests for approximately 25 percent of the total soils packages for the seven fill areas. The NRC staff discovered during the review of five of the seven fill areas that the location of the in-place density test noted on the test report did not always fall within the fill area that was stated on the test report. Additionally, it was found that some of the in-place density test reports were located in the wrong soils package. The following table summarizes the results of the reviews:

	<u>Fill #1</u>	<u>Fill #2</u>	<u>Fill #3</u>	<u>Fill #4</u>	<u>Fill #7</u>
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The NRC staff also reviewed the records for the in-place testing frequency of each layer of backfill that was placed and compacted around the foundation structure. This review revealed that there was no documentation covering either the first three feet of backfill in fill area #7 or the first five feet of backfill in fill area #5. The in-place density tests for fill area #7 were found at the GEO Office (test lab), but no record of inspection was found for the first three feet of fill area #7.

(See Item No. 7 of the Enclosure to the letter from D. Eisenhower to J.M. Cain (LP&L), dated June 13, 1984.

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The NRC review of approximately 25 percent of all the soils packages indicated that the final review conducted by Ebasco was incomplete. The records for fill area #7 were in the GEO Office, but showed no evidence of review, nor could records be found for the first five feet of fill area #5. The soils packages were not all reviewed for technical accuracy based on the fact that deficiencies found during this review should have been discovered during Ebasco's final review. The Ebasco reviewer of these soils packages was involved as a soils QC Inspector almost from the beginning of the backfill operation to its conclusion. Based on this fact, the NRC staff concludes that he was qualified to conduct a records review.

The safety significance of this item is that some fill areas are in question as to the placing and compaction of the backfill because of the missing documents. It is the judgment of the NRC staff that analysis considering the areas of missing records would indicate there is not a safety problem. However, this shall be substantiated by LP&L. This indicates that inadequate attention was given to the compilation of quality records and to conducting satisfactory record reviews.

Potential Violations: The missing and misfiled documents indicate that there is some doubt about the validity of the placement, compaction and inspection of some backfill material, based on the records available, and that criteria XVII of Appendix B to 10 CFR 50 may have been violated.

Actions Required: LP&L shall resolve the issues raised in this allegation in one of the following three ways:

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Statement Prepared By:

J. K. Devers

Date

Reviewed By:

Team Leader

Date

Reviewed By:

Site Team Leader(s)

Date

Approved By:

Task Management

Date



## Attachment 1

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-35.00			9/2/76	10/15/76			

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Document Name:  
SSER X A-138

*file*

Requestor's ID:  
STCINDY

Author's Name:  
J. K. Devers

Document Comments:  
A-159

~~NEED DC's COMMENTS 6/19~~  
Has #  
OK RETYPE REV 1



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by the staff  
- 2 -

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Approved By: Task Management Date

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-38.00							8/23/76
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						9/10/76	
-37.00			9/1/76	5/19/76	10/14/76		8/24/76
							9/3/76
-36.75	10/19/76	10/21/76	9/17/76	10/14/76	10/11/76	9/9/76	9/8/76
	10/20/76	10/23/76			10/12/76	9/10/76	9/9/76
					10/14/76		
-36.50			6/9/76			9/9/76	8/24/76
-36.25	10/25/76	10/21/76	9/14/76	10/14/76	5/27/76	6/4/76	6/11/76
				10/19/76	10/12/76		6/15/76
-36.00	10/19/76		9/2/76				8/24/76
-35.75			9/14/76	5/20/76	10/12/76	9/13/76	
			9/17/76		10/13/76		
-35.50			6/9/76				9/3/76
							9/7/76
							9/9/76
-35.25	10/23/76		10/14/76	10/15/76	5/21/76	6/4/76	6/14/76
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