

PDC No: 99-21

"Q"

Non-"Q"

PDC/FRN Title: Excavation for SSW Pipe Replacement (RFQ #12 scope)

Major

Minor

NARRATIVE (Rev. 2)

A. DESCRIPTION OF CHANGE

• Problem Statement: Salt Service Water (SSW) A Loop pipe spools JF 29-11-4 and 5, and B Loop pipe spools JF 29-13-5 and 6, are degraded and may require replacement. These sections of pipe are located in the yard area just to the south of the circulating water intake and seal well structures, and will require a shored excavation approximately 10 ft. wide by 90 ft. long by 12 ft. deep (400 cu.yd. of material).

• Objectives/Criteria/Modification Scope: The objective of this modification is to delineate the work necessary to safely accomplish the excavation for the pipe replacement scope, and to restore the work area to an acceptable condition. This work scope may also expand to include temporary or other permanent modifications to deal with unforeseen conditions in the excavation. Replacement of the A and B Loop SSW piping, if required will be addressed under a separate modification package. Replacement of the paved surface and any requirements for supplemental fill to restore the subgrade will be performed as a Maintenance activity under a separate package.

Design work is being performed in phases to support an expedited schedule for implementation. Phase I is being released at this time. If additional phases or other changes are required, they will be released using the FRN process.

Phase I - This scope covers the design of the excavation bounded by Piles 1E through-9E, and 1W through 9W, to access to A Loop pipe spool JF 29-11-5, and B Loop pipe spool JF 29-13-6. This scope was previously released for imp incorporation now as part of

• Safety Classification an for possible pipe replacement removal is being performed 99-35. Consequently, both can be performed at the same

The following clarifications

In-situ material and back placed around and above protection for design con

Retaining structures supported with respect to the SSW

Backfill outside Class I

The SSW pipe is considered having a thickness of 4"

• Maintenance Rule Impa

U.S. NUCLEAR REGULATORY COMMISSION

In the Matter of Kentucky (Pylon Water Line Station)

Docket No. 50-293-LR Official Exhibit No. 48

OFFERED by: Applicant/Licensee Intervenor

NRC Staff Other NRC Staff Exh 10

IDENTIFIED on 4-10-08 Witness Panel

Action Taken: ADMITTED REJECTED WITHDRAWN

Reporter/Clerk Thibault

DOCKETED
115NRC

April 15, 2008 (10:00am)

OFFICE OF SECRETARY
RUII EMAKINGS AND
ADMINISTRATIVE STAFF

Temp = SECH-027

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• Safety Classification and Boundary Limits: The Salt Service Water System is Safety Related. Excavation for possible pipe replacement activities will take place when the plant is in a cold condition, and decay heat removal is being performed independently by a third SSW return line installed under Temporary Modification 99-35. Consequently, both the A and B Loop SSW return lines will be out-of-service and replacement work can be performed at the same time.

The following clarifications are provided to delineate safety related impacts:

In-situ material and backfill (i.e. structural fill or flowable fill) placed under the SSW pipe, and backfill placed around and above the SSW pipe for a distance of 2 feet over the top, provides support and protection for design conditions, and is considered Class I.

Retaining structures supporting soils not affecting safety related components perform no safety function with respect to the SSW pipe during this modification, and are considered Class II, Non Safety-Related.

Backfill outside Class I limits is considered Class II, Non Safety-Related.

The SSW pipe is considered operable from a civil/structural perspective when protected by backfill having a thickness of 4 feet over the top of the pipe

• Maintenance Rule Impact: None

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WI3.20 Rev. 1
Attachment 4

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B. PROCUREMENT OF MATERIALS/COMPONENTS

Excavated soils will be reused to bed the replacement pipe and for backfill. Flowable fill may also be used in selected locations, procured by CGI for Class I applications, and per the GEI Specification for Class II applications. Materials specified for construction of the excavation and associated support structures may be procured Non-Q. It is anticipated that most of these materials will be furnished by the contractor

C. CONTROLLED DOCUMENTS/TRAINING AFFECTED

- PNPS Procedures None
- Vendor Manuals None
- Technical Specifications: None
- Priority A Design Documents: None
- Priority B Design Documents: Drawing C20
- FSAR Sections: None
- Operator Training: None
- Technical Training: None

D. DOCUMENTS GOVERNING DESIGN AND INSTALLATION

BECo Drawing C20-4-REP
 GEI Drawing ES-1
 GEI Geotechnical Specification for SSW Piping Replacement

E. SAFETY IMPACT DURING IMPLEMENTATION

As discussed previously, SSW pipe replacement activities will take place when the plant is in a cold condition, and decay heat removal is being performed independently by a third SSW return line installed under Temporary Modification 99-35. Consequently, both the A and B Loop SSW return lines will be out-of-service, and not required to be performing, or available to perform, safety functions during this time. As a result, safety impacts during implementation are limited to the protection of other safety related components which could be affected by construction activities. This would include for example, the Appendix R Manhole 28A and associated duct banks immediately adjacent to the proposed excavation limit, and any other items having safety related functions which are within, or in close proximity of, the excavation as determined by Engineering.

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F. DESIGN ADEQUACY

Excavation for possible replacement of degraded SSW pipe will be accomplished within a soldier pile/timber sheathing structure, engineered to resist lateral soil pressure. During drilling and excavation activities, both the A and B Loop SSW return lines will be out-of-service, and not required to be performing, or available to perform, safety functions. Other safety related components which could be affected by construction activities are protected by structures designed to Class II over Class I criteria.

Dig safe measures have included extensive drawing searches to identify buried components. Ground detection radar has been employed to augment this effort. Holes for auger drilling will be located by survey and individually approved prior to drilling. These measures cannot guarantee all buried components have been identified and precisely located, hence there is some potential that unidentified items could be damaged during drilling and excavation activities. Nevertheless, reasonable assurance is provided that safety related components, and components essential to power generation, will not be affected.

Excavated materials will be controlled in accordance with radiological procedures. Materials will be stockpiled in a manner consistent with Security considerations. Excavated soil materials will be replaced in accordance with specifications for controlled structural backfill.

Geotechnical specifications, drawings and testing services are furnished by a qualified supplier under this modification package. Supporting analysis and calculations are received and accepted under the SUDDS/RF process.

G. INSPECTION/HOLD POINTS/POSTWORK TESTING AND ACCEPTANCE CRITERIA

Backfilling around and over replacement SSW pipe shall not be permitted to proceed until completion of necessary pipe installation inspections as may be required by the associated modification package.

Testing of materials for Class I bedding and backfill under, around and above replacement SSW pipe shall be performed in accordance with the GEI Specification and BECo Commercial Grade Item (CGI) document, as applicable:

- Flowable fill (aka controlled density fill) used for backfill shall be inspected in accordance with the requirements of the applicable CGI. If a conflict exists between the GEI Specification and the BECo CGI, the latter shall have precedence. The pipe shall be properly anchored to prevent flotation. CGI dedication for flowable fill used for Class I applications shall be verified by Quality Control personnel.
- Soil backfill shall re-use excavated materials, and in the sequence specified in the "Plan for Radiological Controls" (Narrative Paragraph J.). The bedding material providing support to the invert of the pipe shall be compacted to the requirements of the GEI Specification for Zone A material to the extent necessary based on disturbance of the subgrade. All other soil backfill around and above the pipe shall be compacted to the requirements of the GEI Specification for Zone B material. Compaction testing for soils used for Class I applications shall be verified by Quality Control personnel.

Soil retaining structures designed to support the excavation walls and considered Class II, Management Q, shall be inspected to ensure requirements of the drawings and specifications are followed. In-process surveillance inspection on a sample basis shall be performed. No special testing is required

Inspection of Class II, Non Safety-Related work is not required

H. COMPONENT NUMBERING CHANGE - na

I. ALARA DESIGN REVIEW: NA This work is being performed outside the RCA

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J. INPUT FOR MAINTENANCE WORK PLAN

Excavation Plan

• General

The excavation contractor shall develop a proposed plan for BECo approval, for the location and configuration of stockpiles of excavated materials. Material stockpiles shall be located and controlled in a manner which precludes the possibility of damaging components associated with Temporary Modification 99-35, or other components in the yard area. Lines of sight required by Security shall be preserved to the maximum extent possible. The plan shall include provisions to identify the locations of existing paving joints associated with previous repairs. This data likely indicates buried utilities which, if not already shown on BECo excavation drawings, may require test pits to permit identification.

Holes to be augered for soldier piles shall be located by a survey. Each hole location shall be approved by Engineering prior to being drilled. Test pits shall be dug by hand when directed by the Engineering as necessary to locate potential drilling obstructions. Excavated materials shall be controlled in accordance with the radiological requirements. Soils shall be re-used during the backfilling/restoration phase to the maximum extent possible. As determined by Engineering, no large rocks shall be permitted to be placed in contact with underground equipment during backfilling activities. The maximum size of gravel in the backfill within one foot of the pipe should be no larger than about 2".

• Plan for Radiological Controls

Radiological considerations will require excavated materials to be segregated and controlled in a prescribed fashion. This plan for control may be modified in-process at the direction of the RPM or designated representative. The following definitions are applied to layers of materials to be excavated:

<u>Material</u>	<u>Description</u>
Layer A	Bituminous asphalt paving materials
Layer B	The 6" soil layer immediately beneath Layer A
Layer C	The 6" soil layer immediately beneath Layer B
Layer D	All other soils beneath Layer C

Layer A paving materials shall be stockpiled in a segregated area for pre-release radiological survey prior to disposal off site. The method of excavation would preferably result in intact pieces of paving, minimizing the amounts of loose aggregate which is more expensive to process for disposal.

Layer B, C and D soil materials shall be stockpiled in different locations during the excavation process. These materials shall be properly identified and controlled to prevent from being mixed together. The backfilling sequence shall be as follows: Layer D soil materials shall be replaced first, followed by Layer C, followed by Layer B.

Backfill

Steel piles shall be cut off approximately 2 ft. below finish grade and abandoned-in-place. Pressure treated timber sheathing may be abandoned-in-place, timber sheathing not pressure treated shall be removed prior to backfilling. Replacement of excavated soils shall be accomplished in accordance with the following sequence: Layer D soil materials shall be replaced first, up to its previous elevation, followed by Layer C, followed by Layer B.

CAUTION: For various reasons, it is expected there will be extra Layer D material remaining after it has been restored to pre-excavation elevations. This is acceptable and desirable since there must be a sufficient volume to replace all Layer C and B materials in their original locations in the excavation.

Backfill shall be compacted as required by the specification. Where conditions may preclude accomplishment of compaction requirements by normal methods using machinery, Engineering may approve alternatives to accomplish an equivalent result

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