

Work Order No: 01324150 - 64

Work Order Title: TK CLOS & REG CN TO PERFORM GROUT PREP/GROUT

PLACEMENT TK 16

Rev: 0

Passport Information

Date Created	08/22/2014
Planner Name	Fail, Jason A
Planner Telephone	208-1894
Equipment Name	Waste Storage Tank
Facility	HTF
CLI Number	241916
Functional Class	PS

1.0 Scope of Work:

Place grout in Waste Storage Tank 16 (241-916H) to support tank closure. This includes removal of riser cover port plugs, tremie installation into risers and pumping of grout through slickline piping. There are 6 grout 'Placements' to fill the Primary Tank, Annulus Tank and then a placement for each Riser and Riser Cap per the **Additional Attachments and in conjunction with:**

- Grout Strategy For Tanks 16 Closure # SRR-LWE-2014-00013
- Structural Integrity Requirements Calculation No. T-CLC-F-00496 R1
- Video Inspection Plan For Tank 16 During Grouting Activities # SRR-LWE-2014-00021
- Type II Tank Top Vertical Loading Evaluation Calculation No. T-CLC-H-00578, (Tank 16)
- Furnishing and Delivery of Tank Closure Grout C-SPP-F-00055 Rev 4

AHA Number: TF-21112 R0				Drawing: See Additional Attachments				
Pre Job Briefing Checklist: OPS-SO-LWO.01				Procedure: C-SPP-F-00055 Rev 4				
SRWP	003	Job Specific RWP	15-HTF-184	Calibration Datasheet: N/A				
Permits: Safe Work Permit				ASME B31.3:		Yes	X	No
Fluid Service: N/A								
Additional Attachments: Attachment A -Tremie Installation Steps, Attachment B -Cleaning/Pigging of Slickline, Attachment C -Flammability Control Evaluation, Attachment D -Valve Alignment Checklist HTF-SKM-2014-00020 -Slickline Support Layout HTF-SKM-2014-00031 -Grout Placement Plan, HTF-SKM-2014-00033 -Riser Generic Formwork Detail HTF-SKM-2014-00034 -Truck Route Riser Sign-off Sheet 1 - Port Plug Removal, Riser Sign-off Sheet 2 – Bulk Fill Placements 1-6, Riser Sign-off Sheet 3 - Riser Placements Daily Truck Log-Gate, Daily Truck Log-Pump, Tank Grout Operations Daily Checklist, SRR-ESH-2014-00111 - Tank 16 Grout RCO Survey Strategy								

2.0 Precautions and Limitations:

- 2.1. Workers shall perform Individual Hazard Analysis (IHA) for this task, which includes continual self-analysis of work scope, hazards and controls (reference Savannah River Site General Employee Basic Hazard Control Handbook).
- 2.2. Warning barricades are required for work areas to control unauthorized access to the work area, identify hazards associated with work, and prevent personnel contact with falling objects and moving parts of equipment.
- 2.3. If unexpected loss of ventilation or improper air flow occurs, place job in a safe condition, exit the area, and **NOTIFY** RCO FLM, PIC, and IH for path forward.
- 2.4. If problems or conditions are encountered that were not anticipated or covered under the AHA or associated permits, or the boundaries of the work need to be modified or changed as the job progresses, **SUSPEND WORK**, Notify supervision, and return the work package to the work coordinator or planner for required revisions.
- 2.5. Portable eyewash units with rinse wands shall be positioned, readily available, in the immediate work area, with an unobstructed travel path, for each potentially exposed employee, where potential exposure to chemicals exists. Number of employees exposed at any given time should be limited. Readily available safety shower shall be positioned in close proximity to work area. In case of exposure to eyes, eyewash for required immediate 15 minute flush. In case of exposure to skin or body, rinse wand for immediate flush of affected area then safety shower as required for 15 minute flush. Contaminated clothing to be removed immediately and exposed person to seek immediate medical attention.
- 2.6. In the event of a spill of grout material greater than 5 gallons out of secondary containment, **CONTACT** the Shift Manager for Direction.
- 2.7. Slickline weight: approx. 150lbs for a 10 foot pc. Tremmie weight: approx. 30lbs for a 20 foot roll. Care should be taken when moving or connecting slickline and riser tremmie. Utilize proper lifting practices and the buddy system with lifts 50 lbs. and over.

3.1. Engineering: **ENSURE** that USQ's have been approved and issued for tank grout placement.

USQ Number: **USQ-HTF-2014-00685** Revision Number: **0**

ENG: _____
Print Name *Signature* *Date*

3.2. FLM: **ENSURE** the following permits are available to support the scope of work.

RWP/SRWP #: 15-HTF-003 Non-Intrusive / 15-HTF-184 Intrusive Work
AHA #: TF-21112 R0

Print Name	Signature	Date
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NOTE: Pre-job briefing shall identify persons/positions responsible for spill response.

3.3. PIC: **PERFORM** a pre-job briefing per **OPS-SO-LWO.01**. /

3.4. Construction: **NOTIFY** GCO for a container request at least 48 hours prior to performing work. ☐

3.5. Construction: **NOTIFY** IH 24 hrs. prior to performing work. □

3.6. Construction: **NOTIFY** RCO prior to performing work. □

3.7. Construction: **NOTIFY** Camera Inspection Crew
(Contact: **Danny Blair 803 335-8094**) ☐

3.8. Construction: **NOTIFY** Shift Manager daily prior to grouting activities, that gates L and V will be utilized for Grout Truck ingress and egress, **AND REQUEST** SOM to notify and provide alternate route in case of emergency to Fire Department 7-4340, 5-2117 and SRSOC.

3.9. Construction: **REQUEST** the Shift Manager to evaluate entry into any and all appropriate LCO(s) prior to starting work:
Shift Manager Signature _____ Date _____ /

3.10. Construction: **VERIFY** *Tank 16 Grout RCO Survey Strategy* is approved for implementation, and place a copy in the package prior to start of work. ☐

3.11. Construction: **ENSURE** RCO has performed the necessary steps to ensure proper radiological controls are in place. ☐

Section 3.0 Prerequisites: Cont.**Initial/Date/**☐

- 3.12. Construction: **ENSURE** grout pumps and slickline piping system is installed and ready for use per WO# 1324150-69. ☐
- 3.13. Construction: **ENSURE PIC** completes Attachment “C” *Flammability Control Evaluation* daily. ☐
- 3.14. Construction: **ENSURE Tank Grout Operations Daily Checklist** is performed daily. ☐
- 3.15. Construction: **EVALUATE** the work site plans/layout and determine if installed eyewash/safety shower units are appropriately located to support the task(s). ☐
- 3.16. Construction: **ENSURE** to stage additional eyewash with rinse wand as required. ☐
- 3.17. Construction: **ENSURE** test areas, safety showers and hay bales at storm drains are installed, operable and ready for use per WO# 1324150-70. ☐
- 3.18. Construction: **ENSURE** water supply is available to support work activities and clean-out grout trucks. ☐
- 3.19. Construction: **ENSURE** tremie piping along with associated heavy sleeving is available and ready for installation into tank risers. ☐
- 3.20. Engineering: **PERFORM** engineering evaluation to determine minimum purge flow requirement to maintain flammable vapor concentration below 20% LFL and required time for response to a loss of ventilation. Copy of the evaluation to be placed in package.

Engineering Evaluation #: _____**Engineering:**_____
PRINT_____
SIGN_____
DATE

- 3.21. Construction: **VERIFY** I & M has staged camera equipment per SRR-LWE-2014-00021 “*Inspection Plan for Tank 16 During Tank Grouting Activities*”. ☐
- 3.22. Construction WGS: **PERFORM** walk down with workers and planner to discuss work, beginning with the portion of task to be performed first. ☐
- 3.23. Construction: **ENSURE** URS is notified to perform grout testing per C-SPP-F-00055 Rev 4 Attachment 5.3. ☐
- 3.24. Construction: **ENSURE** IH has established Hearing boundaries for Grout Pump and Concrete Truck locations. ☐

4.0 Task Performance:**Initial/Date****REMOVAL OF RISER COVER PORT PLUGS and INITIAL TREMIE
INSTALATION****NOTE: RCO will perform step 4.1. concurrently with steps 4.2 thru 4.7.*******RADCON ACTION STEP*****

4.1. Construction: **ENSURE** RCO performs a survey of work area floors, general area surfaces and equipment. _____ /

4.1.1. **IF** any of the following levels are exceeded,

Contamination	Probe			Dose Rate		Airborne	
200 dpm/100 cm ²	α	N/A	α	N/A	Extremity	N/A	DAC-hr
30,000 dpm/100 cm ²	$\beta\gamma$	N/A	$\beta\gamma$	N/A	Skin		
				30 mrem/hr	Whole Body		

THEN DECON to no detectable contamination.

4.1.2. **IF** these levels cannot be achieved, **THEN**

DECON to ALARA, **AND**

CONTACT the RCO, FLM and LWGS for a path forward. _____ /

4.1.3. **IF** the above whole body dose rate level is exceeded, **THEN**

CONTACT RCO, FLM and LWGS to continue. _____ /

4.1.4. **DOCUMENT** Action Taken (N/A if levels are not exceeded): _____

PIC/LWGS _____ RCO _____

_____ /

Section 4-Task Performance continued:**Initial/Date**

4.2. PIC: **ENSURE** tank ventilation is operating prior to start of work process to remove riser cover port plugs, during tank and annulus bulk fill.

/

4.3. PIC: **INITATE HIGH RAD CONTROL PROCEDURE** for the removal of port plugs.

/

4.4. Construction: **REMOVE** riser cover port plug present, **AND ENSURE RCO** performs an air flow check to ensure airflow is **DOWN INTO** the Tank and **NOT OUT** into the atmosphere **AND IF** the airflow check fails, **THEN** place work in a safe condition, exit area and **NOTIFY** RCO, FLM, IH, and LWGS of conditions.

/***IH ACTION STEP***

4.5. PIC: **ENSURE** IH/IH qualified RCO **PERFORMS** a Mercury Vapor Survey of **Riser port plug cover removal for tremie installation activities**, IF mercury levels are greater than 0.008 mg/m3 within the breathing zone **THEN** replace cover, **SUSPEND** work and **NOTIFY** LWGS and the Area Industrial Hygienist. Work may proceed using supplied air respiratory protection once IH concurrence is obtained.

Survey Results: _____ mg/m³Hg

/

4.6. Construction: **INSTALL** initial tremie (pre-sleeved or laxan box sealed to riser plate) into the Primary Tank or Annulus per PIC/RCO/DA direction into tank riser cover port.

/

4.7. Construction: **ENSURE** tremie is mechanically secured at top of tank riser.

/

4.8. Construction: **ATTACH** tremie onto 5" slickline per Manufacturer's assembly instructions and have CDE validate installation.

CDE _____ /

/

Section 4- Task Performance continued:

Initial/Date

- 4.9. PIC: Prior to grouting operations, **INITIATE** Attachment C: 'Flammability Control Evaluation' **AND ENSURE** qualified RCO performs flammability monitoring of the primary tank and annulus vapor space to verify flammable vapor levels are less than 20% LFL, **AND IF** the flammable vapor levels are greater than 20% LFL, operate forced ventilation until flammable vapor levels are less than 20% LFL, **THEN RECORD** sample results from Attachment C.

_____ % LFL Tank

_____ % LFL Annulus

- 4.10. PIC: **VERIFY** Tank 16 Grout Addition Authorization for startup has been approved by the Tank 16 Closure SRR Project Manager.

Authorization is verified by Tank 16 SRR Project Manager:

_____	_____	_____	_____/_____ PIC
<i>Print</i>	<i>Signature</i>	<i>Date</i>	

PLACEMENT OF GROUT

NOTE 1: There are 6 grout 'Placements' to fill the Primary Tank and Annulus Tank per '**HTF-SKM-2014-00031 Grout Placement Plan**'.

NOTE 2: RCO will perform radiological surveys per the 'Tank 16 Grout RCO Survey Strategy', during all grout placements and slickline clean outs.

NOTE 3: An ISLT is required to be performed whenever a leg of the slickline is used followed by periodic inspections for leaks.

NOTE 4: IH will verify noise barricade posting adequacy during placement of grout.

Section 4- Task Performance continued:

Initial/Date

Placement 1 - Primary Tank, From Elevation 0ft – 0 in to Elevation 4 ft-6 in.

NOTE: Steps 4.11 thru 4.15 will be performed for each riser where grout is placed.

Individual riser and valve sign-offs shall be completed on 'Riser Sign-off Sheet 2 and

Valve Alignment Checklist, on a daily / as needed basis, per PIC.

Any risers or valves not used on 'Riser Sign-off Sheet 2 and Valve Alignment Checklist,
shall have an 'N/A' next to the riser ID# or valve #.

Package sign-off of steps 4.11 thru 4.15 will be done when **Placement 1 is complete.**

4.11. Construction: **PERFORM** visual inspection of installed tremie.

_____ / _____

4.12. Construction: **IF** the tremie is not installed in desired grout location, **THEN**
INSTALL tremie into riser per PIC/RCO/DA direction, per **Attachment A** – 'Tremie
Installation Steps' AND **VERIFY** tremie is within 5ft of the tank bottom or last grout
lift. **Attachment A** – "Tremie Installation Steps" to be used for **each** riser and **each**
length installed.

_____ / _____

DA to VERIFY:

_____ / _____

**NOTE: ENSURE slick-line is completely barricaded and posted prior to and during
grout placement to avoid personnel injury.**

4.13. Construction: **PLACE/POUR** Grout 2'-0" APP. 416 cu yds. (Failed cooling coils
may be grouted at this point) **THEN** continue fill to 4'-6"; NOT TO EXCEED 936
cu. yds. **DIRECTING** empty trucks to the wash-out/clean-out location North East of
RBOF / 244-H.

_____ / _____

4.14. Construction: **INITIATE** Attachment B-Cleaning/Pigging of Slickline and Valve
Alignment Checklist per HTF-SKM-2014-00020 as needed.

_____ / _____

4.15. Construction CDE: **VERIFY** the amount of grout placed for each riser and
RECORD the total for Placement 1 AND **OBTAIN** concurrence from PIC and DA.

Placement 1 Total _____ yds³ CDE _____ / _____ PIC _____ / _____ DA _____ / _____

END OF Placement 1 - Primary Tank, to Elevation 4'-6".

Section 4- Task Performance continued:

Initial/Date

Placement 2 - Annulus, From Elevation 0ft – 6in to Elevation 10ft – 6in.

NOTE: Steps 4.16 thru 4.20 will be performed for each riser where grout is placed.

Individual riser and valve sign-offs shall be completed on 'Riser Sign-off Sheet 2 and

Valve Alignment Checklist, on a daily / as needed basis, per PIC.

Any risers or valves not used on 'Riser Sign-off Sheet 2 and Valve Alignment Checklist,
shall have an 'N/A' next to the riser ID# or valve #.

Package sign-off of steps 4.16 thru 4.20 will be done when **Placement 2 is complete.**

4.16. Construction: **PERFORM** visual inspection of installed tremie.

_____ / _____

4.17. Construction: **IF** tremie is not installed in desired grout location, **THEN INSTALL**
tremie into riser with PIC/RCO/DA direction, per **Attachment A – 'Tremie**
Installation Steps' **AND VERIFY** tremie is within 5ft of the annulus bottom or last
grout lift. **Attachment A – "Tremie Installation Steps"** to be used for **each** riser and
each length installed.

_____ / _____

DA to VERIFY:

_____ / _____

**NOTE: ENSURE slick-line is completely barricaded and posted prior to and during
grout placement to avoid personnel injury.**

4.18. Construction: **PLACE/ POUR** Grout (fill to Elevation 10ft – 6in; NOT TO EXCEED
255 cu. yds.) **AND DIRECT empty** trucks to the wash-out/clean-out location North
East of RBOF / 244-H.

_____ / _____

4.19. Construction: **INITIATE** Attachment B-Cleaning/Pigging of Slickline and Valve
Alignment Checklist per HTF-SKM-2014-00020 as needed.

_____ / _____

4.20. Construction CDE: **VERIFY** the amount of grout placed for each riser and
RECORD the total for Placement 2 **AND OBTAIN** concurrence from PIC and DA.

Placement 2 Total _____ yds³ CDE _____ / _____ PIC _____ / _____ DA _____ / _____

END OF Placement 2 - Annulus, From Elevation 0ft – 6in to Elevation 10ft - 6in.

Section 4- Task Performance continued:

Initial/Date

Placement 3 - Primary, From Elevation 4ft – 6in to Elevation 18ft – 6in.

NOTE: Steps 4.21 thru 4.25 will be performed for each riser where grout is placed.

Individual riser and valve sign-offs shall be completed on 'Riser Sign-off Sheet 2 and

Valve Alignment Checklist, on a daily / as needed basis, per PIC.

Any risers or valves not used on 'Riser Sign-off Sheet 2 and Valve Alignment Checklist,
shall have an 'N/A' next to the riser ID# or valve #.

Package sign-off of steps 4.21 thru 4.25 will be done when **Placement 3 is complete.**

4.21. Construction: **PERFORM** visual inspection of installed tremie. _____ /

4.22. Construction: **IF** tremie is not installed in the desired grout location, **THEN**
INSTALL tremie into riser with PIC/RCO/DA direction, per **Attachment A** –
'Tremie Installation Steps' **AND VERIFY** tremie is within 5ft of the annulus bottom
or last grout lift. **Attachment A – "Tremie Installation Steps"** to be used for **each**
riser and **each** length installed. _____ /

DA to VERIFY: _____ /

**NOTE: ENSURE slick-line is completely barricaded and posted prior to and during
grout placement to avoid personnel injury.**

4.23. Construction: **PLACE/ POUR** Grout (fill to Elevation 18ft – 6in; NOT TO EXCEED
2911 cu. yds.) **AND DIRECT empty** trucks to the wash-out/clean-out location
North East of RBOF / 244-H. _____ /

4.24. Construction: **INITIATE** Attachment B-Cleaning/Pigging of Slickline and Valve
Alignment Checklist per HTF-SKM-2014-00020 as needed. _____ /

4.25. Construction CDE: **VERIFY** the amount of grout placed for each riser and
RECORD the total for Placement 3 **AND OBTAIN** concurrence from PIC and DA.

Placement 3 Total _____ yds³ CDE _____ / _____ PI _____ / _____ DA _____ / _____

END OF Placement 3 - Primary, From Elevation 4ft – 6in to Elevation 18ft - 6in.

Section 4- Task Performance continued:

Initial/Date

Placement 4 - Annulus, From Elevation 10ft – 6in to Elevation 24ft – 6in.

NOTE: Steps 4.26 thru 4.30 will be performed for each riser where grout is placed.

Individual riser and valve sign-offs shall be completed on 'Riser Sign-off Sheet 2 and

Valve Alignment Checklist, on a daily / as needed basis, per PIC.

Any risers or valves not used on 'Riser Sign-off Sheet 2 and Valve Alignment Checklist, shall have an 'N/A' next to the riser ID# or valve #.

Package sign-off of steps 4.26 thru 4.30 will be done when **Placement 4 is complete.**

4.26. Construction: **PERFORM** visual inspection of installed tremie. _____ / _____

4.27. Construction: **IF** tremie is not installed in the desired grout location, **THEN INSTALL** tremie into riser with PIC/RCO/DA direction, per **Attachment A** – 'Tremie Installation Steps' **AND VERIFY** tremie is within 5ft of the annulus bottom or last grout lift. **Attachment A – "Tremie Installation Steps"** to be used for **each** riser and **each** length installed. _____ / _____

DA to VERIFY: _____ / _____

NOTE: ENSURE slick-line is completely barricaded and posted prior to and during grout placement to avoid personnel injury.

4.28. Construction: **PLACE/ POUR** Grout (fill to Elevation 24ft – 6in; NOT TO EXCEED 356 cu. yds.) **AND DIRECT empty** trucks to the wash-out/clean-out location North East of RBOF / 244-H. _____ / _____

4.29. Construction: **INITIATE** Attachment B-Cleaning/Pigging of Slickline and Valve Alignment Checklist per HTF-SKM-2014-00020 as needed. _____ / _____

4.30. Construction CDE: **VERIFY** the amount of grout placed for each riser and **RECORD** the total for Placement 4 **AND OBTAIN** concurrence from PIC and DA.

Placement 4 Total _____ yds³ CDE _____ / _____ PIC _____ / _____ DA _____ / _____

END OF Placement 4 - Annulus, From Elevation 10ft – 6in to Elevation 24ft - 6in.

Section 4- Task Performance continued:

Initial/Date

Placement 5 - Primary, From Elevation 18ft – 6in to Approximate Elevation 27ft – 0in.

NOTE: Steps 4.31 thru 4.35 will be performed for each riser where grout is placed.

Individual riser and valve sign-offs shall be completed on 'Riser Sign-off Sheet 2 and

Valve Alignment Checklist, on a daily / as needed basis, per PIC.

Any risers or valves not used on 'Riser Sign-off Sheet 2 and Valve Alignment Checklist,
shall have an 'N/A' next to the riser ID# or valve #.

Package sign-off of steps 4.31 thru 4.35 will be done when **Placement 5 is complete.**

4.31. Construction: **PERFORM** visual inspection of installed tremie.

_____ / _____

4.32. Construction: **IF** tremie is not installed in the desired grout location, **THEN**
INSTALL tremie into riser with PIC/RCO/DA direction, per **Attachment A** –
'Tremie Installation Steps' AND **VERIFY** tremie is within 5ft of the annulus bottom
or last grout lift. **Attachment A – "Tremie Installation Steps"** to be used for **each**
riser and **each** length installed.

_____ / _____

DA to VERIFY:

_____ / _____

**NOTE: ENSURE slick-line is completely barricaded and posted prior to and during
grout placement to avoid personnel injury.**

4.33. Construction: **PLACE/ POUR** Grout until grout is observed breaching the
Tank/Riser Interface at Risers 2, 3, 6, 8, **AND DIRECT** empty trucks to the wash-
out/clean-out location North East of RBOF / 244-H.

_____ / _____

4.34. Construction: **INITIATE** Attachment B-Cleaning/Pigging of Slickline and Valve
Alignment Checklist per HTF-SKM-2014-00020 as needed.

_____ / _____

4.35. Construction CDE: **VERIFY** the amount of grout placed for each riser and
RECORD the total for Placement 5 **AND OBTAIN** concurrence from PIC and DA.

Placement 5 Total _____ yds³ CDE _____ / _____ PIC _____ / _____ DA _____ / _____

Primary and Annulus Cumulative Total: _____ yds³

CDE _____ / _____ PIC _____ / _____ DA _____ / _____

END OF Placement 5 - Primary, From Elevation 18ft – 6in to Approximate Elevation 27ft - 0in.

Section 4- Task Performance continued:

Initial/Date

Placement 6 - Annulus, From Elevation 24ft – 6in to Approximate Elevation 27ft – 0in.

NOTE: Steps 4.36 thru 4.40 will be performed for each riser where grout is placed.

Individual riser and valve sign-offs shall be completed on 'Riser Sign-off Sheet 2 and

Valve Alignment Checklist, on a daily / as needed basis per PIC.

Any risers or valves not used on 'Riser Sign-off Sheet 2 and Valve Alignment Checklist,
shall have an 'N/A' next to the riser ID# or valve #.

Package sign-off of steps 4.36 thru 4.40 will be done when **Placement 6 is complete.**

4.36. Construction: **PERFORM** visual inspection of installed tremie. _____ / _____

4.37. Construction: **IF** tremie is not installed in the desired grout location, **THEN**
INSTALL tremie into riser with PIC/RCO/ DA direction, per **Attachment A** –
'Tremie Installation Steps' **AND VERIFY** tremie is within 5ft of the annulus bottom
or last grout lift. **Attachment A** – "Tremie Installation Steps" to be used for **each**
riser and **each** length installed. _____ / _____

DA to VERIFY: _____ / _____

**NOTE: ENSURE slick-line is completely barricaded and posted prior to and during
grout placement to avoid personnel injury.**

4.38. Construction: **PLACE/ POUR** Grout until grout is observed breaching the
Tank/Riser Interface at Risers East, West, **AND DIRECT empty** trucks to the wash-
out/clean-out location North East of RBOF / 244-H. _____ / _____

4.39. Construction: **INITIATE** Attachment B-Cleaning/Pigging of Slickline and Valve
Alignment Checklist per HTF-SKM-2014-00020 as needed. _____ / _____

4.40. Construction CDE: **VERIFY** the amount of grout placed for each riser and
RECORD the total for Placement 6 **AND OBTAIN** concurrence from PIC and DA.

Placement 6 Total _____ yds³ CDE _____ / _____ PIC _____ / _____ DA _____ / _____

END OF Placement 6 - Annulus, From Elevation 24ft – 6in to Elevation 27ft - 0in.

Section 4- Task Performance continued:

Initial/Date

Riser Placements

NOTE: Steps 4.41 thru 4.49 will be performed for each riser where grout is placed.

Individual riser sign-offs are done only on 'Riser Sign-off Sheet 3 – Riser Placements' on a daily, as needed basis, per PIC. Any risers not used on 'Riser Sign-off Sheet 3 – Riser Placements' shall have an 'N/A' next to the Riser ID#.

Package sign-off of steps 4.41 thru 4.59 will be done when **All Risers**, including **Annulus Inlet and Exhaust Piping**, are complete. Also see step 4.54 and 4.55 for cumulative totals.

4.41. PIC: **ENSURE** portable ventilation is available **AND PLACED** per Rad Con direction within one duct diameter of riser opening.

_____/____

4.42. PIC: **VERIFY** that flammable vapor concentrations have been sampled and meet acceptable levels prior to grouting each riser, per Attachment C (Ref. WSRC-TR-2003-00087 Rev.23. Section 6.8.1)

_____/____

4.43. Construction: **PERFORM** visual inspection of installed tremie/slickline/hose.

_____/____

4.44. Construction: **IF** the tremie/slickline/hose is not installed in desired grout location, **THEN INSTALL** tremie into riser with PIC/RCO/DA direction, per **Attachment A** – 'Tremie Installation Steps' **AND VERIFY** tremie is within 5ft from the top of the last grout lift. **Attachment A – "Tremie Installation Steps"** to be used for **each** riser and **each** length installed. This step shall be N/A if no tremie installation is required.

_____/____

DA to VERIFY:

_____/____

Section 4 continued:

Initial/Date

CAUTION

If an interruption in the riser grouting operation has a duration greater than 8 hours, monitoring of vapor space concentration shall be completed and <20% LFL before grout can continue.

- 4.45. PIC: **IF** a delay of > 8 hours has occurred during riser pour, **OR**
IF > 8 hours has elapsed since riser flammability sampling was completed, **THEN**
HAVE riser being grouted resampled for flammable vapors and document in PIC log. _____ / _____
- 4.46. PIC: **IF** riser required resampling for flammability, **THEN**
VERIFY vapor concentration from Att. C is <20% LFL prior to continuing. _____ / _____
- 4.47. Construction: **PLACE/POUR GROUT AND DIRECT** all trucks to the wash-out/clean-out location North East of RBOF / 244-H. _____ / _____
- 4.48. Construction: **INITIATE 'Attachment B - Cleaning/Pigging of Slickline'** as needed. _____ / _____
- 4.49. Construction: **DISCONNECT** tremie/slickline/hose from each riser with PIC/RCO/DA direction. _____ / _____

Section 4 continued:**Initial/Date**4.50. Construction CDE: **RECORD** the amount of grout placed **AND OBTAIN** concurrence from PIC and DA.

<u>Riser 1</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>Riser 2</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>Riser 2a</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>Riser 3</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>Riser 4</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>Riser 4a</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>Riser 5</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>Riser 6</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>Riser 7</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>Riser 8</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>N Riser</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>S Riser</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>E Riser</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>W Riser</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>H&V Riser</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>3'-6" Riser</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>Annulus Inlet</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____
<u>Annulus Exhaust</u> _____ yds ³	CDE _____ / _____	PIC _____ / _____	DA _____ / _____

Note: Work Step 4.50 continued on next page.

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4.50 Continued: Construction CDE: **RECORD** the amount of grout placed **AND OBTAIN** concurrence from PIC and DA.

IP 18 _____ yds ³	CDE_____ / _____	PIC_____ / _____	DA_____ / _____
IP 35 _____ yds ³	CDE_____ / _____	PIC_____ / _____	DA_____ / _____
IP 39 _____ yds ³	CDE_____ / _____	PIC_____ / _____	DA_____ / _____
IP 42 _____ yds ³	CDE_____ / _____	PIC_____ / _____	DA_____ / _____
IP 65 _____ yds ³	CDE_____ / _____	PIC_____ / _____	DA_____ / _____
IP 118 _____ yds ³	CDE_____ / _____	PIC_____ / _____	DA_____ / _____
IP 151 _____ yds ³	CDE_____ / _____	PIC_____ / _____	DA_____ / _____
IP 154 _____ yds ³	CDE_____ / _____	PIC_____ / _____	DA_____ / _____
IP 182 _____ yds ³	CDE_____ / _____	PIC_____ / _____	DA_____ / _____
IP 207 _____ yds ³	CDE_____ / _____	PIC_____ / _____	DA_____ / _____
IP 259 _____ yds ³	CDE_____ / _____	PIC_____ / _____	DA_____ / _____
IP 262 _____ yds ³	CDE_____ / _____	PIC_____ / _____	DA_____ / _____

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- 4.51. Construction: **INSTALL** Riser Cap formwork at Riser 7, with 3" clearance around all sides of riser, and 3" clearance above the top of the riser per **HTF-SKM-2014-00033-Generic Riser Formwork Detail**.

_____/____

- 4.52. Construction: **PLACE/POUR** grout for Riser Cap at Riser 7 **AND OBTAIN** concurrence from PIC, CDE and DA.

Riser 7-Const_____/____ **PIC**_____/____ **CDE**_____/____ **DA**_____/____

- 4.53. Construction CDE: **VERIFY** the total cumulative amount of grout placed for the *Tank 16 Riser Placements* and **RECORD** the total below:

Tank 16 Total_____³yds **CDE**_____/____ **PIC**_____/____ **DA**_____/____

- 4.54. Construction CDE: **VERIFY** the total cumulative amount of grout placed for *Tank 16 Primary Bulk Fill and Riser Fill Placement* and **RECORD** the total below:

Tank 16 Total_____³yds **CDE**_____/____ **PIC**_____/____ **DA**_____/____

- 4.55. Construction: **CONTACT** RCO to perform surveys prior to removing tools/materials from radiological work area.

_____/____

NOTE: All low-level waste should be packaged for disposal by Waste Generator and verified by Waste Verifier prior to disposal.

- 4.56. Construction: **PERFORM** housekeeping activities as follows:

_____/____

- **CLEAN** tools used.
- **REMOVE** waste and/or excess material generated from work activities.
- **DISPOSE** of waste per GCO/Waste Verifier directions.

5.0 Post Maintenance Testing & Return to Service:

5.1. No PMT Required

6.0 Post Work & Feedback:

- 6.1. Construction: **ENTER** work history data into WMS considering:
- Details of the work performed
 - Special equipment and tools used
 - Procedures or drawings needed
 - Parts and materials installed (include make and model; add manufacturer if not listed in the detail on the Material Service Request (MSR))
 - Post maintenance testing accomplished
 - Job hazards encountered
 - Problems encountered and actions taken to resolve them
 - Other information that may be useful at a later date should be included in the history provided by Maintenance in M350, History Brief Panel
- _____ /

Section 6 continued:

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- 6.2. Construction: **SUBMIT** feedback for the planners to use to improve future performance of this task or other work packages by entering a comment of type "CO" on Panel M301, for example:
- Better order of task instructions
 - Changes that will make the task instructions easier to follow
 - Better method of accomplishing the task
 - Tools/material needed that were not identified in the work package
 - Hazards encountered that were not identified in planning
- _____ /
- 6.3. FLM: **ENSURE** all documents used during the job are identified on the P211 Work Package Print Report in section Print Report - Work Order Record Documents (M102 / M104) or, if added during work execution, identified in Documents added to work package in field.
- _____ /

7.0 Attachments / References:

- See Additional Attachments in Sect.1.0