

**Addendum No. 5
To
IMPACTED MATERIALS PLACEMENT PLAN
ON-SITE DISPOSAL FACILITY**

**Placement of Category 5 Oversized Materials
By Category 3 Placement Procedures**

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1. PURPOSE

Several items were encountered during demolition and excavation operations which do not meet any of the impacted material descriptions identified in the Impacted Materials Placement Plan (IMP Plan). The materials encountered are similar to Category (CAT) 3 materials with the exception that the materials are larger than the 4 ft maximum cross-sectional dimension requirement for Category 3 – Individual Placement procedures. The oversized materials currently identified cannot be size-reduced in a reasonable manner; therefore, this Addendum No. 5 provides an appropriate placement procedure for these oversized, Category 3, impacted materials.

2. BACKGROUND

Section 5.2 Impacted Material Categories of the IMP Plan states that, "Category 3 impacted materials are materials that must be individually handled and placed in the OSDF, and that are suitable for having Category 1 material placed around and against them. These impacted materials have maximum cross-sectional dimension of no more than 4 ft, are shaped such that Category 1 material can be compacted around and against them, and are essentially incompressible using standard compaction equipment." Several oversized items currently identified are similar to this definition with the exception of the 4 ft. maximum cross-sectional dimension requirement. The materials in question are larger than 4 ft. in cross-sectional dimension and cannot be size-reduced in accordance with the principle of ALARA (as low as reasonably achievable) regarding exposure to potential hazards. Therefore, in accordance with Section 8.6.1 of the IMP Plan, these oversized materials will be classified as Category 5. Section 8.6.1 states that "Materials either nominally larger than the physical criteria for the OSDF as identified in Section 4.3 (Physical Criteria) of this IMP Plan, or not reasonably anticipated by the currently identified categories in this IMP Plan, will require specialized placement plans to be developed on an as needed basis..." Therefore, this Addendum No. 5 provides the placement plan for the oversized materials.

3. PLACEMENT REQUIREMENTS

3.1 Material Description

This addendum addresses oversized materials that can fit into a 12 ft. x 12 ft. plan area with a maximum thickness of 4 ft. These materials include materials that cannot be size reduced in accordance with the principle of ALARA (as low as reasonably achievable) regarding exposure to potential hazards.

Several items identified by demolition and excavation require special handling. These items have been stockpiled and are currently available for placement in the OSDF. A brief description of the materials is as follows:

1. 2 ft. diameter pipe Tee's measuring approximately 3 ft. by 3 ft. by 3 ft.;
2. tanks 2 ft. in diameter by about 5 ft. long;
3. coils of ACM wire cable with a 5 ft. OD, a 2.5 ft. ID, and a 2 ft. height;
4. construction equipment counter-weights 2.5 ft. by 1.5 ft. by 11.5 ft., and 3 ft. by 2.5 ft. by 5 ft.;
5. concrete crusher track-hoe attachments 6 ft. by 3.5 ft. by 3 ft., and 5 ft. by 3.5 ft. by 2 ft.;
6. "Slab Crab" (bucket) attachment 3 ft. by 3.5 ft. by 6 ft.;
7. bucket attachment 3 ft. by 4.5 ft. by 4 ft.;
8. track-hoe arm with 2 hydraulic pistons 15 ft. by 3 to 8 ft. by 3 ft.;
9. track-hoe arm with hydraulic piston 12.5 ft. by 3 to 8 ft. by 3 ft.;
10. ring gear with a 6 ft. diameter by 0.5 ft. high; and
11. undercarriage frame of track-hoe 7 ft. by 10 ft. by 1.5 ft.

Item No. 1 as listed above, while in its current condition does not meet the size requirements of any placement categories, should be split through the centerline of the pipe as stated in Section 4.3 of the IMP Plan which states, "...*process piping with a nominal diameter of 12 in. or greater shall be split in half...*" After splitting the pipe tees, the tees would meet the requirements for CAT 2 material as they would have 1 dimension that is less than 18 inches. The large flanges on these pipe tees may preclude the splitting of the pipe tees. If this is the case, the tees will need to be placed in accordance with this addendum.

Item No. 2 as listed above, while in its current condition does not meet the size requirements of any placement categories, should be crushed or split through the centerline of the tank similar to pipes as stated in Section 4.3 of the IMP Plan which states, "...*piping used as a surface water drainage conduit (e.g. corrugated metal pipe, concrete pipe, vitrified clay pipe) and non-process piping shall be crushed or split in half in length to reduce void space; maximum size shall be 10 ft. in length and 18 in. thickness.*" After crushing or splitting the tanks, the tanks would meet the requirements for CAT 2 material as they would have 1 dimension that is less than 18 inches. If however the tanks cannot be crushed or split, then they can be placed according to this addendum.

Item No. 3 as listed above consists of coils of electrical wire that has insulation that contains asbestos. Using the ALARA principal of exposure, it is recommended that the coils not be size reduced prior to placement in the OSDF.

The remaining Items 4 through 11 consist of either solid metal or plate steel and are not practical to size-reduce in order to fit into an existing category. Therefore they may be placed in accordance with this addendum.

3.2 Placement Procedure

Oversized items meeting the material description stated above in Section 3.1 of this Addendum No. 5 can be placed as individual members in the OSDF. The items are to be placed in a grid established to receive oversized items. The grid requirements for these materials shall be the same as the requirements for Category 3 grids as stated in Section 8.4.1 of the IMP Plan, *"...should be placed toward the center of the cell, at least 50 ft. horizontally from the bottom of the select impacted material layer in the final cover system, and not in the same horizontal elevation within 100 ft. laterally of more compressible materials (i.e., Category 4 materials, and sludges and double-bagged asbestos of Category 5 materials). The 100 ft. laterally means a 100-ft. separation distance from all directions (i.e., north-south, east-west, diagonally) of placed Category 3 material."*

To the extent feasible, groups of individual members shall be similarly and regularly sized to enable their placement in the grid in regular patterns. Items shall be placed a minimum of 8 ft. (2.4 m) apart. However, a smaller spacing is allowed if compaction of Category 1 material around the items can be achieved to at least 85 percent with a rolling average of 90 percent of the standard Proctor maximum dry density, determined as described in Section 7.4.2 of the IMP Plan. Special backfilling procedures may need to be established and approved by the Certifying Engineer for uniquely shaped items. Like items such as the coils of wire cable and construction equipment counter-weights may alternatively be placed adjacent to each other in a single lift up to a 12 ft. by 12 ft. area as long as the voids can be filled with granular material and/or grout.

Free-draining liquids (e.g., hydraulic fluid) are to be removed from equipment prior to hauling the item to the OSDF. Items having voids with a contiguous void larger than 1 ft³ (0.03 m³), estimated based on a visual examination, shall be filled with a quick-set grout, or flowable cohesionless material approved by the Certifying Engineer. If a grout is used, it shall be allowed to set for a minimum of 4 hours prior to the commencement of placement of fill around the item. Void spaces may be filled before hauling material to the OSDF or the item may be positioned to facilitate the filling of the voids at the point of placement. Voids larger than 1 cubic foot which are not subject to compressive stresses, such as the void space between the track-hoe arms and their hydraulic pistons, may be filled with non-biodegradable, expandable foam to prevent migration of fines into the void.

NOTE: It is unlikely that granular materials, grout, or expandable foam are available within the impacted areas, therefore, these materials, which are required to fill the voids, will likely need to be clean materials brought into the impacted area.

Prior to placement of the oversized materials, the surface of the in-place Category 1 impacted material shall be prepared by rolling with a smooth-drum roller in the placement area. The oversized materials shall be placed on the surface in a regular pattern with spacing between individual items described herein to allow Category 1 material placement and compaction with available equipment. The space between each item shall be filled with Category 1 material placed in maximum 12-inch-thick compacted (12 to 15 inches loose measure) lifts. A final 12-inch-thick compacted lift of Category 1 material shall be placed over each grouping (e.g., grid or portion of a grid) of oversized materials.

As the oversized items are expected to be less compressible than the majority of the impacted materials placed in the OSDF, the oversized items should be placed toward the center of the cell and not in the same horizon with more compressible materials (i.e., Category 4 materials, and Category 5 materials including sludges and double-bagged asbestos). Horizons of oversized items shall be separated by a least a 2 ft. (0.6 m) thick intervening horizon of Category 1 material.

3.3 Compaction

Compaction shall be conducted as stated in Section 8.4.3 of the IMP Plan, *“Each lift of soil (Category 1 material) between and above the Category 3 items shall be compacted using equipment capable of achieving compaction to at least 85 percent with a rolling average of 90 percent of the standard Proctor maximum dry density, determined as described in Section 7.4.2 of the IMP Plan. It is anticipated that the compaction moisture content for this Category 1 material will be within ± 3 percentage points of the material's optimum moisture content. Specific requirements for compaction moisture content will be established by the Construction Manager during construction. These requirements will take into account the workability of the Category 1 material, the required shear strength to obtain adequate levels of OSDF stability, moisture contents needed to achieve dust and other fugitive dust control, and material trafficability.*

“A final 12- to 15-in. thick loose lift of soil (Category 1 material) shall be placed above the Category 3 material. This final compacted lift shall be proof-rolled using equipment with a minimum gross vehicle weight of 20 tons and exert a ground pressure of at least 65 psi. Soft spots indicated by tire ruts more than 3 in. in depth or visible deflection under the moving proofrolling equipment shall be stabilized through additional passes of the compactor. Any soft spot that cannot be stabilized with further compactive effort shall be cause for additional treatment to the satisfaction of the Construction Manager. This treatment shall consist of removal, replacement, and recompaction of the Category 1 material, and, if needed, infilling soft spots/areas around the Category 3 (oversized) material with grout or other material approved by the Construction Manager.”