



2020 DOW CENTER  
September 22, 2000

40-17  
The Dow Chemical Company  
Midland, Michigan 48674

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Captain, USNR (Ret)  
Chief, Facilities Decommissioning Section  
Division of Waste Management  
U.S. Nuclear Regulatory Commission  
Mail Stop T-7F27  
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RE: Bay City, Michigan - Saturated Zone Soil Sampling Procedure

The Dow Chemical Company (TDCC) in a recent meeting with the U.S. Nuclear Regulatory Agency (NRC) agreed to provide the saturated zone sampling procedure that will be used to determine the saturated zone source term as part of the on-going activity for termination of NRC License STB-527.

TDCC has prepared for NRC review its proposal for how it proposes to conduct the saturated zone sampling to determine the source term for material within the water table for NRC review and comment. TDCC recognizes that the NRC cannot approve the attached saturated zone sampling plan as written but can provide comments and guidance that the approach being proposed appears to be satisfactorily once it is submitted with the planned license amendment request.

TDCC currently plans to commence implementation with this sampling plan no later than October 9, 2000 in order to meet the aggressive schedule it has proposed.

If there are any questions regarding this request please let me know.



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Attachment (1)

cc: Sam Nalluswami, NRC, Rockville  
Ed Kulzer, NRC Region III  
Dave Fauver, RSI  
Joe Hezir, EOP

NMSSOI Public

Rec'd from  
Sam Nalluswami  
at NRC 10/10/00  
on 10/17/00

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## Bay City, Michigan

# Saturated Zone Soil Sampling Procedure

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<b>Introduction</b>	<p>The determination of the source term of thorium in the saturated zone is needed to evaluate if a groundwater pathway exposure exceeds current radiological criteria. The procedure described below will be used to obtain the soil samples necessary for the source term determination to be used in the dose and groundwater assessment.</p>
<b>Sample Grid Layout</b>	<p>The areas that have not been verified by the NRC for free release will be broken down into 10 meter by 10-meter grids. The 10-meter by 10-meter area will be called a subgrid. Each subgrid will be segregated into quadrants. This will result in four (4) quadrants per subgrid.</p>
<b>Determination of location for sampling</b>	<p>A random number table will be used to select one of the four quadrants for sampling. The quadrant selected will have the sample taken from the center of the randomly selected quadrant.</p> <p>The selected quadrants for saturated zone sampling will be compared with shallow soil samples (6 inches) taken previously to determine if the random distribution of quadrants selected for sampling are also representative of areas of elevated thorium concentrations within the surficial soils.</p>
<b>Sample collection procedure</b>	<p>Each quadrant soil sample will be taken using a "direct push" sampler. A two- (2) inch core sample will be collected from the surface to the confining till clay which is typically 6 – 12 feet below ground surface in unexcavated areas. The approximate depth to groundwater from the ground surface will be determined from the soil cores.</p> <p>Upon removal of the soil core the saturated and unsaturated soil will be separated and placed in separate sample containers. The saturated soil sample cores from the same borehole will be composited and the sample for laboratory analysis will be obtained from the soil composite.</p> <p>The composite over the entire borehole is consistent with the mixing that would naturally occur in the shallow groundwater system at the site and would be representative of the source available within the water table.</p>
<b>Sampling Handling and analysis</b>	<p>Sample preparation and analysis will follow the SOPs approved by the NRC from previous submittals by TDCC.</p>