

Xitech Dual Pump Product Recovery Test

The purpose of this pilot study is to discover what level of water depression yields the best free product recovery rate, obtain the radius of influence at optimum water depression depth, and finally discover if the depression pump can be operated at a depth where the water discharge will only require carbon filtering.

TEST#1: (2 day test) Measure the Free Product LNAPL recovery rate WITHOUT water depression.

REQUIRED EQUIPMENT:

- Skimmer system (Xitech to supply)
- Compressed air source (consultant to supply)
- Electronic Interface meter (consultant to supply)
- Empty holding tank for Free Product (consultant to supply)

SET UP:

Gauge well for depth to product and depth to water.

Install the skimmer into the well.

If the skimmer has a white plastic slotted well screen with a black reference line, then place the black reference line at the interface if the product thickness is less than 1 foot. Place the black reference line 1 foot into the top of product if the product thickness is greater than 1 foot.

If the skimmer has a metal slotted well screen, then place the middle of the slotted well screen at the interface if the product thickness is less than 1 foot. Place the middle of the slotted well screen 1 foot into the top of product if the product thickness is greater than 1 foot.

To complete the assembly of the skimming system, refer to Xitech Installation manual.

OPERATION PROCEDURE:

Set Xitech controller to operate skimmer 20 minutes 3 times a day. Operate skimmer for 2 days.

DATA COLLECTION:

Record product thicknesses in nearby wells before skimming begins once each day and during the last skimming event.

Record amount of product collected in holding tank each day.

Record the product thickness in the test well before and after the last skimming event.

TEST#2: (1/2 day test) Determine the discharge contamination concentrations at 1 foot of water table depression and radius of influence.

REQUIRED EQUIPMENT:

- Electronic Interface meter (consultant to supply)
- Water depression pump (consultant to supply)
- Empty holding tank for discharge water (consultant to supply)
- Water sample vials (consultant to supply)

SET UP:

- Remove skimmer from well.
- Install water depression pump as deep as possible in the well.

OPERATION PROCEDURE:

- Turn on the water depression pump. Adjust the output of the water depression pump until the water level in the well is 1 foot below static water level. Hold water level steady for 20 minutes.

DATA COLLECTION:

- Record the water discharge flow rate.
- Take a water sample from the water being discharged from the well.
- Record water table depths in surrounding wells.

TEST #3 (1/2 day test) Repeat TEST#2 for a 2 foot water level depression in the test well.

TEST#4: (2 day test) Determine the Free Product recovery rate at 1 foot of water table depression.

REQUIRED EQUIPMENT:

- Skimmer system (Xitech to supply)
- Compressed air source (consultant to supply)
- Electronic Interface meter (consultant to supply)
- Empty holding tank for Free Product (consultant to supply)
- Water depression pump (consultant to supply)
- Empty holding tank for discharge water (consultant to supply)

SET UP:

Install skimmer back into the well at a depth 1 foot deeper than in TEST#1

OPERATION PROCEDURE:

Turn on the water depression pump. Adjust the output of the water depression pump until the water level in the well is 1 foot below static water level. Maintain this water level for 2 days. CAUTION: Maintaining this level is critical for data collection.

DATA COLLECTION:

- Record the water discharge flow rate.
- (Optional) Take a water sample from the water being discharged from the well.
- Record water table depths in surrounding wells.
- Record amount of product collected in holding tank each day.
- Record the product thickness in the test well before and after the last skimming event.

TEST #5 (2 day test) Repeat TEST#4 for a 2 foot water level depression in the test well

Data Analysis:

Compare TEST#1 to TEST#4 and TEST#5 for total Free Product recovered. If Free Product recovered was greater in TEST#5(2 foot depression) than in TEST#4 (1 foot depression), then to decide if the increased collection of Free Product is worth the cost of the additional water treatment.

The radius of influence data can be used to determine well spacing.

The water samples and water flowrates can be used to determine the loading on your water treatment system.