Screen-Space Fluid Rendering
Andrew Young asy10@fsu.edu
Dr. Gordon Erlebacher gerlebacher@fsu.edu

Step 1
Render a collection of particles from the viewer’s perspective.

Step 2
No need to worry about particles outside the viewer’s perspective.

Step 3
The goal is to obtain the fluid surface from a set of particles as shown by the green curve.

Step 4
Instead of rendering points, render the particles as point sprites. A point sprite is a square texture which is always oriented toward the viewer.

Step 5
Next, all obstructed point sprites are removed because the viewer can not see them and therefore should not spend time to render them.

Step 6
Now turn the points sprites into spheres (more accurately hemispheres), that are oriented toward the viewer.

Step 7
Next, use Gaussian blur to smooth the depths of the spheres. The effect produces a more continuous surface.

Figure 1:
The points rendered as spheres with lighting effects. The result from Step 6 above.

Figure 2:
The depth map output from Step 6. The darker values represent objects closer to the viewer.

Figure 3:
After blurring the depth map, the output is smoother and more representative of a surface.

Figure 4: The final image with the smoothed depth values and lighting effects.