RE: NWB Licence No. 3BC-BGI0813: Spill Contingency Plan

1. Fuel caches are located on the summit plateau of the Devon Island Ice Cap at an elevation of around 1820m a.s.l. At this location, snow accumulates year-round and melt is limited to a few days each year. There is never any running or ponded water on the surface (hence reference to position of the storage location relative to the high water mark of surface water bodies is meaningless). Our activities at the site take place in April and May of each year, when temperatures are always below freezing. In the fuel caches, drums stand directly on the snow and their location is marked by stakes. In winter, the drums are buried and they are re-excavated in the spring. In summer, drums that are darker than the underlying snow will melt into it, developing a supporting ring of snow around them. Our experience over many years in such locations is that drums never tip over when stored in this way, and this keeps the risk of significant spills to a minimum. However, when drums are placed on plywood, the continuous surface cover suppresses melt of the underlying snow relative to adjacent uncovered snow. The result of this differential melting is that a snow/ice pedestal develops beneath the cover and drums can become elevated above the surrounding surface. Eventually there is a tendency for the cover to start to slip and for drums to tip over. Under these circumstances there may be a risk of spillage. When drums are placed on a plastic sheet that might trap spilled fuel, the result is usually uneven subsidence of the cache into the snow which can result in drums leaning or even tipping, again increasing the risk of spillage. For these reasons we stand drums directly on the snow. It makes them less likely to tip, and easier to handle (which also reduces the risk of spills)
2. Fuel transfer takes place in two ways. By transfer from drum to jerry cans using a barrel pump, and by pouring from jerry cans directly into the gas tank of skidoos or small gas powered drills. Here drip pans can be used to contain spills and the trapped fuel can be transferred directly back to the source drum or jerry can. When drums are in use, the barrel pump is left in the drum all the time and the open end of the transfer hose is stored facing upwards to prevent any release of fuel from the hose. There is a small risk of a spill when a barrel pump is removed, but this can be contained using a drip tray. Once empty, drums are immediately re-sealed to ensure there is no risk of spillage of residual fuel. The same is true of empty jerry cans. Empty drums are removed from the field site on the first available aircraft and returned to PCSP at Resolute Bay. Empty jerry cans are either returned to Resolute at the end of each field season or tightly sealed and added to our over-winter equipment cache.
3. As all fuel is stored on the snow surface a small spill will soak into the surface snow and a spill kit will not help to remove it. Such spills would be dealt with by shoveling contaminated snow into plastic garbage bags and storing them for removal to Resolute Bay at the earliest opportunity. We imagine that a large spill might percolate deeper into the snow, but we have no experience of this. Since it is relatively easy to excavate the surface snow to depths of 2-3m, collection of contaminated snow is probably still the best way to deal with the spill.

4. In the event of a spill we would: (i) Report the spill immediately to the 24-Hour Spill Line at (867) 920-8130 and to the Inspector at (867) 975-4295; and (ii) for each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site.

Summary

In short, our strategy is to take extreme care to avoid having spills and to collect and remove any contaminated snow from the site.