

## **Review of NRT-RRT Factsheet—“Guidance” on the Application of Oil Sorbents and Solidifiers” from the Perspective of Archeology and other Cultural Resource Types**

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(The comments assume that the application and retrieval of these materials will be conducted by experienced spill responders who would be fully trained and experienced in sorbent and solidifier uses)

1. Type I adsorbents (roll, film, sheet, pad, blanket) and Type II adsorbents (Enclosed: pillows) if properly applied would appear to pose little or no impacts to surficial archeological remains such as lithic scatters, sherd scatters, exposed shell middens and similar surface expressions of archeological remains. Based on the limited information provided, these materials would appear to absorb the oil or similar material on the site but not remove pull up significant amounts of small objects such as flakes and small pieces of bone. Perhaps the smallest oiled artifacts might adhere to the fabric or be mechanically disturbed upon setting down or pulling up the sorbents, but the overall threat appears to be minimal. Similarly, these types of sorbents would pose little or no threat to structural remains or ruins (wood, masonry, stucco, etc) as long as care was taken in the application and removal process.

In the case of buried archeological sites these Type I and Type II adsorbents would pose no threat to the buried resources. In fact prompt use would be beneficial to keep the spill substances from penetrating the soil where they could contaminate archeological remains (radiocarbon dates, soil chemistry, etc.)

2. A Type II adsorbent (loose), “an unconsolidated particulate material” might pose more of a threat to surficial archeological sites. This threat would not come from the application but from the retrieval process if it involved scoops or shovels or similar mechanical removal. If properly applied in sufficient amount this material should remain rather light (it has a low specific gravity) even after picking up oil; and if this is the case, a common means of removal entails the use of an industrial vacuum. It is possible that the smallest archeological remains would be sucked up by the vacuum depending on the setting necessary to retrieve the now-oiled adsorbent. If it is carefully applied at the correct rate and in sufficient amount this loose absorbent should not create the type of gloppy lumps of oil that would in turn pick up small flakes or similar small archeological materials.

Proper application should not harm historical structures though some physical traces of this particulate matter could be left behind in cracks and crevices in buildings. However,

this material is inert and should not cause any damage per se. Since these adsorbents are organic materials they should eventually decay and disappear.

3. Solidifiers might pose some degree of threat to surficial archeological sites (i.e. a lithic scatter). These materials are generally used to go after lighter oils or fuels like gasoline where the polymers target the hydrocarbons and physically bond with the spill substance. This is a physically weak bond, not a chemical bond, and heavier archeological materials should not be harmed or disturbed when the solidifier is expertly removed. So the expectation is that only the tiniest of archeological specimens would be inadvertently removed with the consolidated spill substance.

Again, solidifiers should not cause damage to historic buildings and similar built structures. As with the sorbents they are relatively light in specific gravity. And as particulate matter rather than liquid, solidifiers would not easily penetrate hard surfaces. It is possible that this type of material might penetrate cracks and crevices in buildings and survive as a sort of dusting if it did not encounter sufficient densities of the spill hydrocarbons in such cracks and crevices with which to form a bond. Given that it is a polymer it would not break down and would remain intact for a long time if it were not removed. It is possible that if one had a fairly porous surface that has been penetrated by the spill the solidifiers might penetrate a little way into the fabric as it targets the hydrocarbons. But this near surface solidified material should be retrievable by using a vacuum. It is worth noting that if it cannot be entirely retrieved solidifiers have a very low toxicity and therefore should not pose a threat even if it is left behind.

4. Solidifiers should cause no known impacts to buried archeological sites. It would not leach into the soils; and most especially after it has come in contact with the spill substance and created solidified masses. If applied quickly it would be very beneficial for it would prevent the spill substances from penetrating the soils and contaminating buried archeological deposits and changing the subsurface soil chemistry.

5. As always continued experience with these sorbents and solidifiers may reveal unknown harmful or beneficial effects that vary with weather, conditions, place, and the skills and caution of the spill responders.