12.07 Centerline Coordinate List - Begin Station Accuracy

Question:
When generating the centerline coordinate list, why does the Northing and Easting coordinates in COGO sometimes not match the printout for the same station?

Answer:
The problem was created when the chain was first stored in COGO. While we normally report stations to two (2) decimal places for English projects and three (3) decimal places for Metric projects, it is inconsistent to the coordinate readout accuracy, which is to four (4) decimal places.

Describing chain -RPBY8- yields two different beginning stations depending on the set station accuracy.

Note a difference of 0.0026 ft.

Because the Centerline Coordinate List program depends heavily on the beginning station (double precision, 16 decimal places!) and the increment distance to report each coordinate point along the chain, by the time a desired even beginning station to start the report is reached, the coordinates and station may not matched what is in COGO and the printout.

Here is the comparison at station 10+00.00 of the same chain, -RPBY8-.

COGO Coordinates

Note a difference of 0.0027 ft in the Northing.

A simple fix is to store the beginning of the chain accurately, e.g. 4+35.12. In this case, since the beginning station for -RPBY8- is actually 10+00.00, simply restore and restation chain -RPBY8- starting at station...
10+00.00. I have made a copy of the RDY GPK and recreated a chain -RPBY8REV-. 

Processing the Centerline Coordinate List program with the revised chain, the coordinates in DOGO should match the printout.

<table>
<thead>
<tr>
<th>Point</th>
<th>Chain</th>
<th>Station</th>
<th>Northing (Y)</th>
<th>Easting (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RPBY8RE 10+00.00</td>
<td>6289996.7013</td>
<td>2462338.6284</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>RPBY8RE 11400.00</td>
<td>630993.1508</td>
<td>2462312.2255</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>RPBY8RE 19400.00</td>
<td>631684.4045</td>
<td>2389707.1061</td>
<td></td>
</tr>
</tbody>
</table>