Attendees:

Voting Members:
Pete Carrato, Bechtel Corporation, Chair of IT
Greg Soules, CB&I (PUC Member)
Bill Scott, AISC Industrial building committee
Eric Wey, Fluor

Corresponding Members:
Robert Simmons, Petra Seismic/ASHRAE
Harold Sprague, Parsons
Rick Drake, Fluor

Discussion:

This meeting was focused on refining the list of “deliverables” expected from this IT. Based on the discussion of IT6 at the last PUC meeting the following list of issues was discussed:

**IT6 Nonbuilding Structures (taken from PUC meeting minutes)**

General topics being considered: vertical seismic, duration of strong ground motions, Risk vs Reliability (a systems approach).

Non-building topics:

1. Thin wall tanks, which will no longer be considered.
2. Thin wall corrugated metal tanks being actively discussed.
3. Anchorage to concrete, not discussed within the group yet.
4. Buildings with short specified design life (i.e. waste treatment) that might be beyond the scope of the IT.
5. Fiberglass cooling towers, being actively discussed.
6. Large concrete foundation, being actively discussed.
7. Lattice column structure, being actively discussed.
8. Expand pipe-rack section to distributed systems (conveyor systems, large duct work, new trigger points for additional analysis), being actively discussed.
It was agreed that items (1) thin walled tanks and (4) short specified design life structures, would no longer be considered by this Issue Team.

G. Soules provided a discussion of item (2) corrugated metal tanks. B. Manley provided the contact information for Ben Faircloth who is familiar with this issue within AISI. Soules has not yet been successful in contacting Faircloth. Soules is also in the process of contacting the Division of the State Architect for California to get their input on this issue. Use of corrugated tanks for water storage in schools is not uncommon and is a concern. Soules will prepare draft wording for seismic requirement for corrugated metal tanks, that will be circulated to the IT and then forwarded to AISI for their consideration.

A general discussion of item (8) distributed systems took place lead by Soules, Wey and Drake. Wey and Drake are in the process of proposing trigger points for when “additional analysis” is required when a distributed system interacts with a structure. The initial trigger points being considered are use of the 25% mass rule (Section 15.3) and a similar 25% stiffness rule. Other items that should be considered include, lumped equipment weight, operating weight of fluid in pipes, and deflection sensitive structures. It was mentioned that there may be guidance available to reference in the ASCE Guidelines for Seismic Evaluation and Design of Petrochemical Facilities, although this is not a consensus document.

Drake has prepared draft wording to address “T head” pipe supports. This will be circulated to the IT for consideration at our next meeting. This will need to be coordinated with Chapter 13 and IT5.

Inclusion of conveyors and ductwork will also continue to be considered in an expanded section on distributed systems. Belt pulls on conveyors in combination with seismic should be considered. For large ductwork, expansion joints and ash loads are potential concerns.

Item (3) anchorage to concrete was briefly discussed. The focus should be on cast-in anchors. This will be a topic for the next IT meeting. Carrato will lead this discussion.

Item (5) fiberglass cooling towers was discussed by Simmons. He provided an update from CTI which prefers an R of 3.5. Simmons will be corresponding with the CTI seismic group and be attending the ASHRAE meetings during the next few weeks. He will provide an update at the next IT meeting.

Item (6) large concrete foundations was briefly discussed by Carrato. This item is related to foundations for large equipment such as those for turbine-generators, compressors, fans, pumps, etc. It was agreed that this is an issue that should continue to be considered. This will be a topic for the next meeting.

Time did not permit the discussion of item (7) lattice column structures. This topic will be brought up at a future meeting.

As a final point the need to continue the consideration of vertical seismic effects on structure was brought up. This topic will be brought up at a future meeting.
Action Items and Status:

Existing Action Items:

1) E. Wey will provide a copy of a paper he presented at the ASCE Structures Congress on the large bore piping issue for distribution to the IT.

New Action Item:

1) G. Soules to prepare draft wording of seismic provisions for corrugated metal tanks and distribute to IT for review prior to forwarding to AISI.
2) R. Simmons to provide feedback from meetings with CTI and ASHREA on seismic provisions for fiberglass cooling towers.
3) P. Carrato to prepare discussion of cast-in anchors for next IT meeting.
4) P. Carrato to prepare discussion of large concrete equipment foundations for next IT meeting.