Testing to Support Resolution of GSI-191

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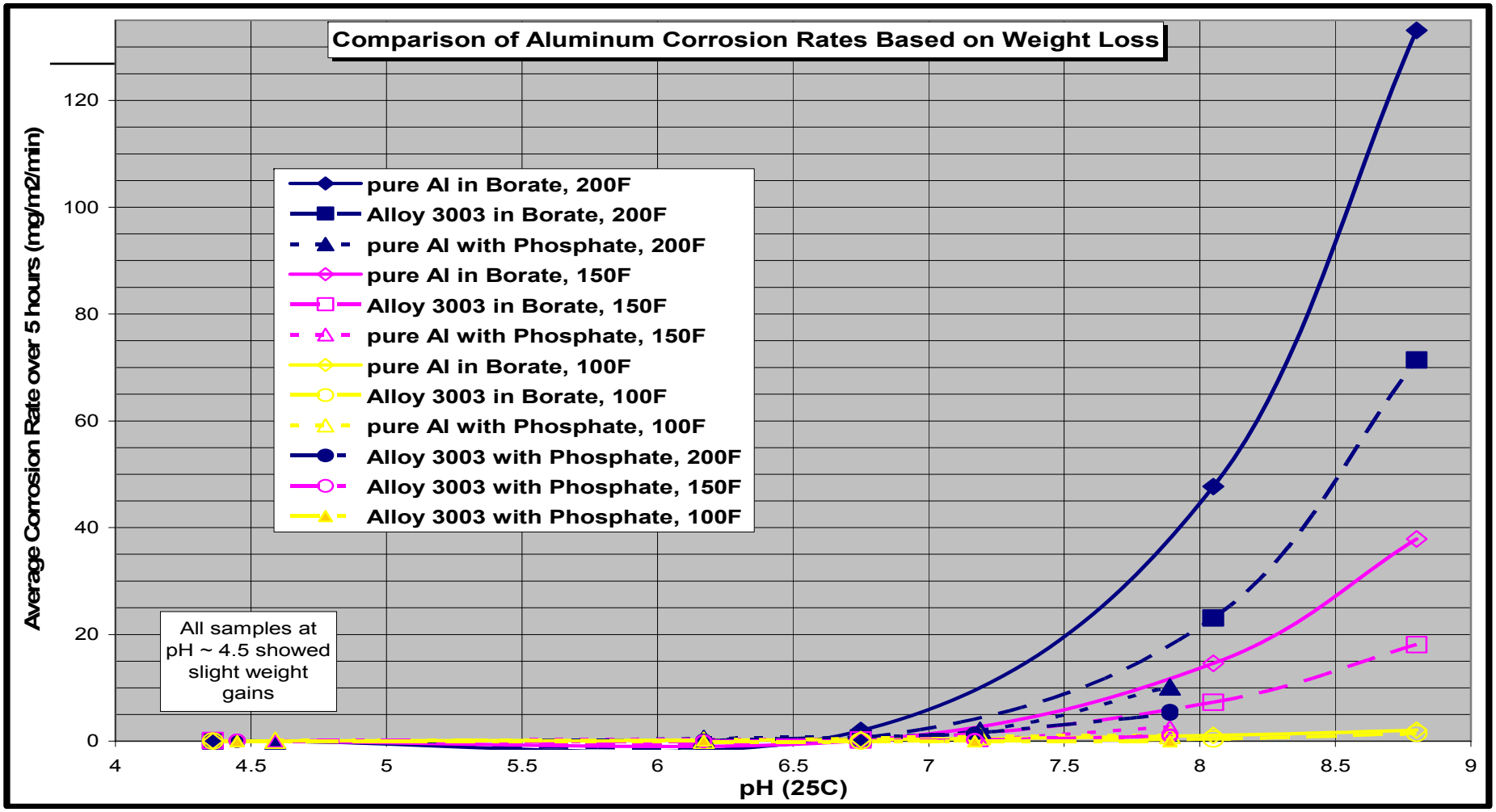
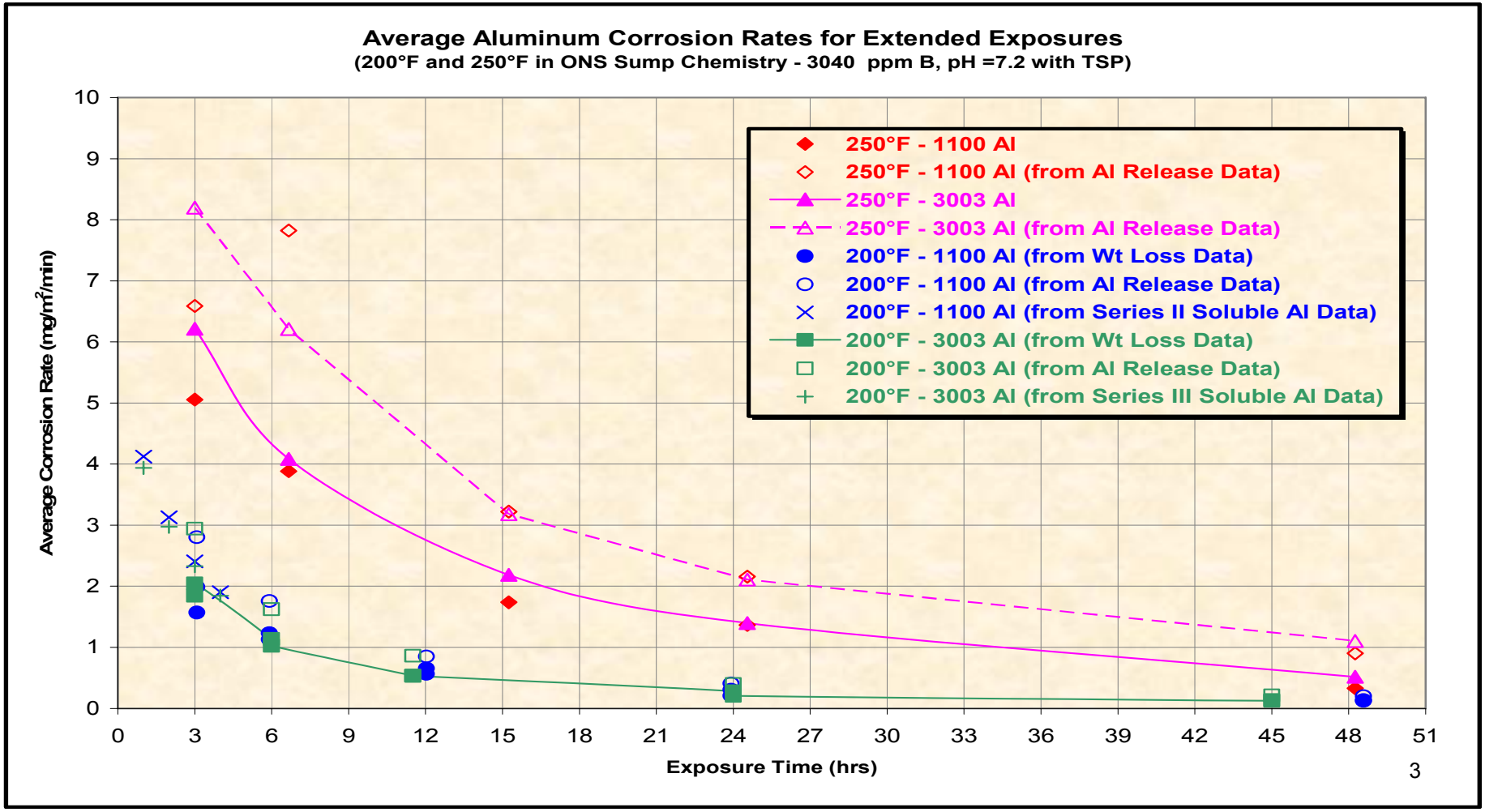
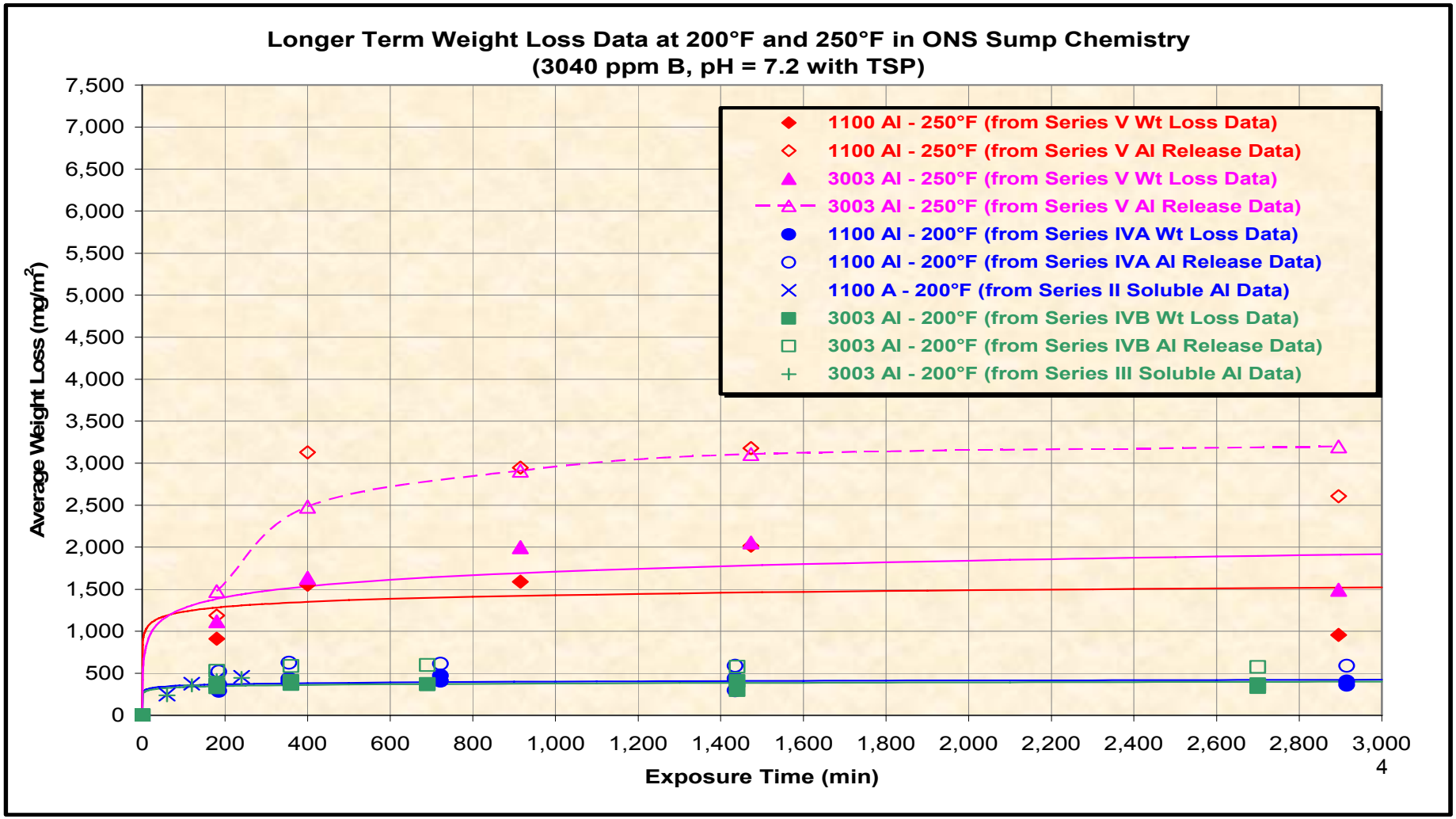
Aluminum Corrosion Rates



Aluminum Corrosion Rates



Long Term Aluminum Corrosion Tests



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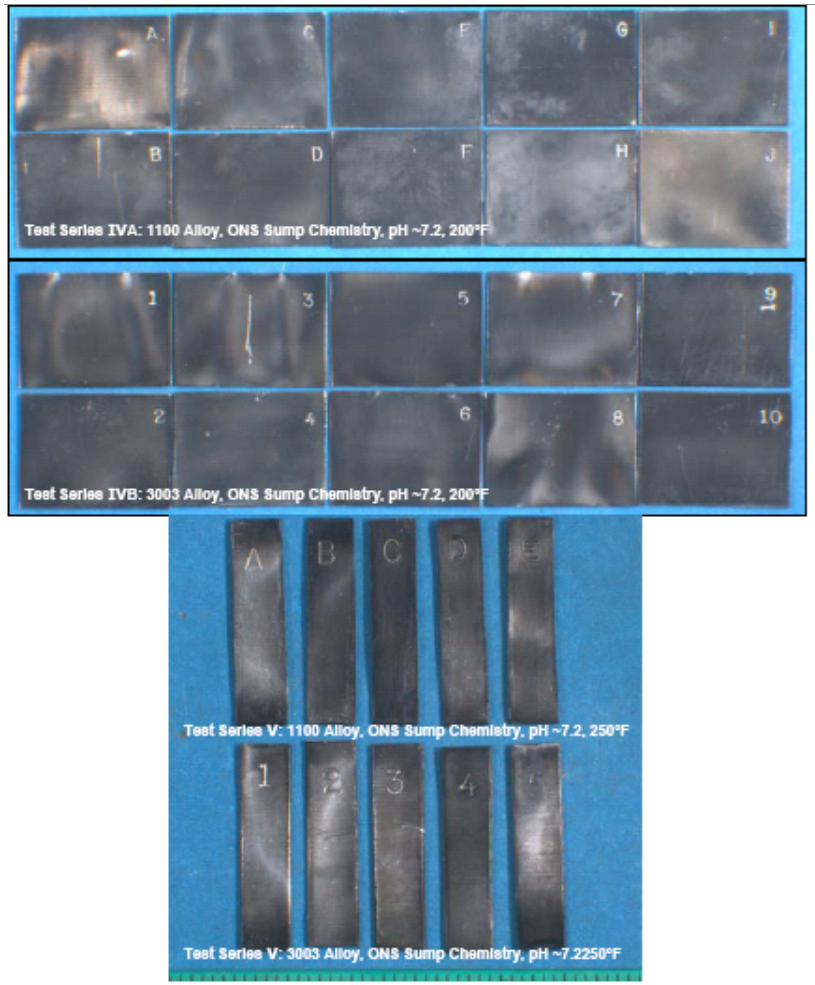


Figure 12: Appearance of Type 1100 and Type 3003 aluminum coupons after longer term exposure to ONS sump chemistry; 200°F (top photos) and 250°F (bottom photo). For all test series, exposure times are ~3, 6, 12, 24 and 48 hours from left to right.

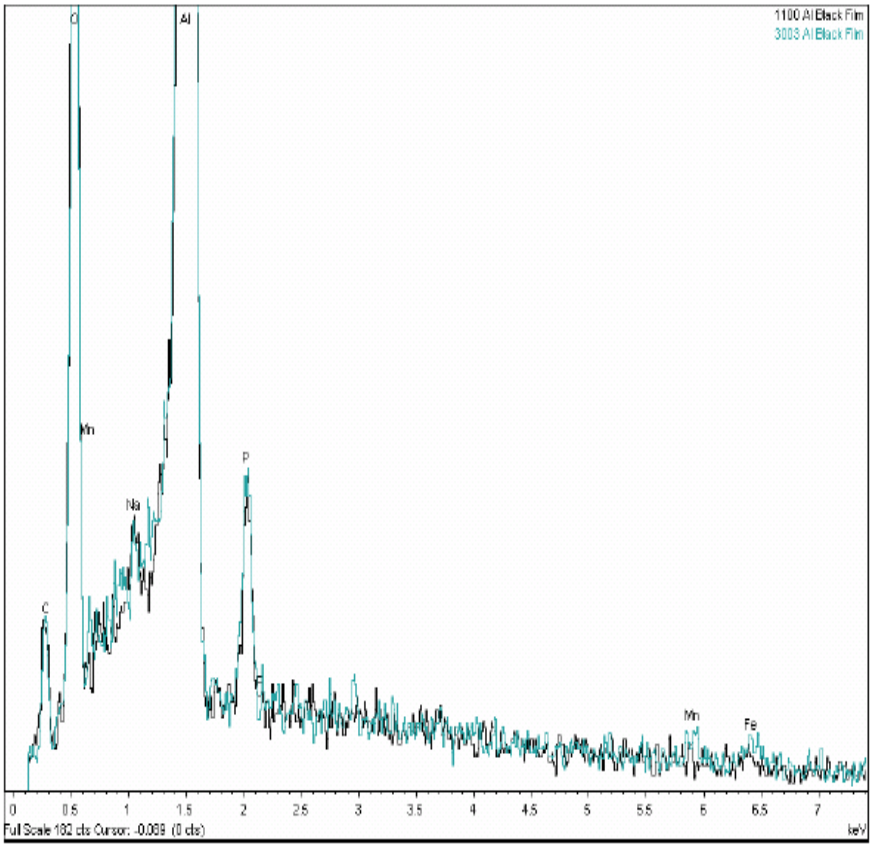
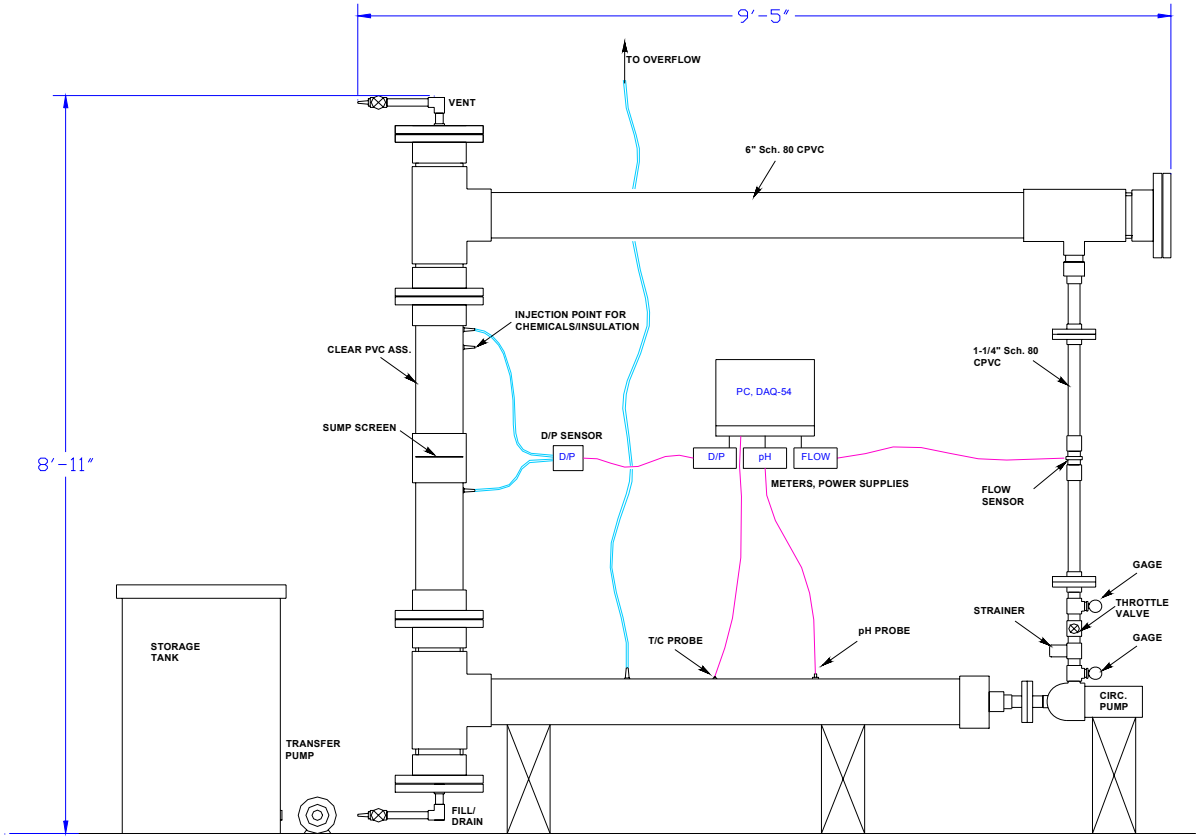
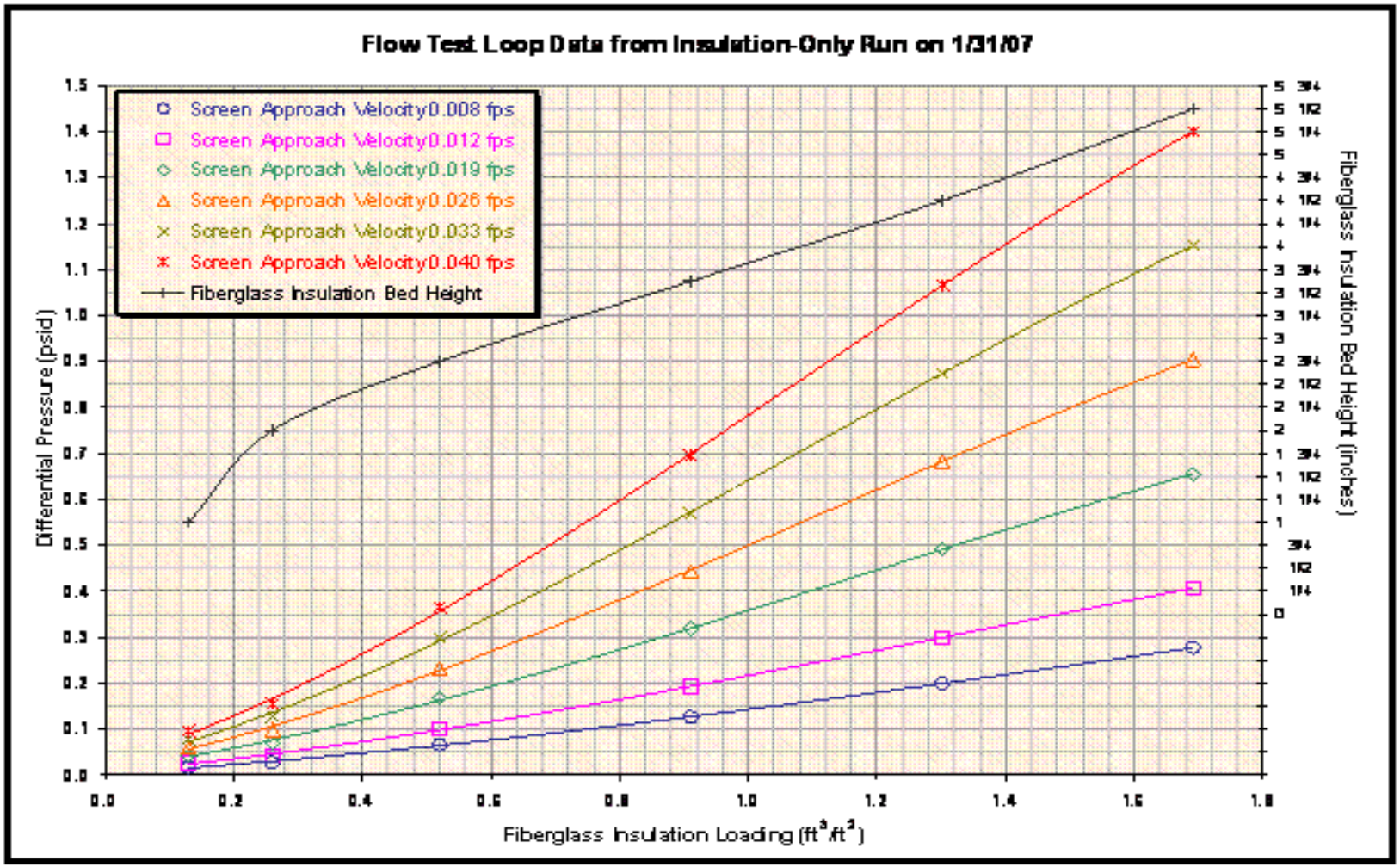


Figure 8: Compared EDS spectra from Type 1100 and Type 3003 aluminum coupons after exposure in ONS sump chemistry, showing presence of phosphorous in thin corrosion film.

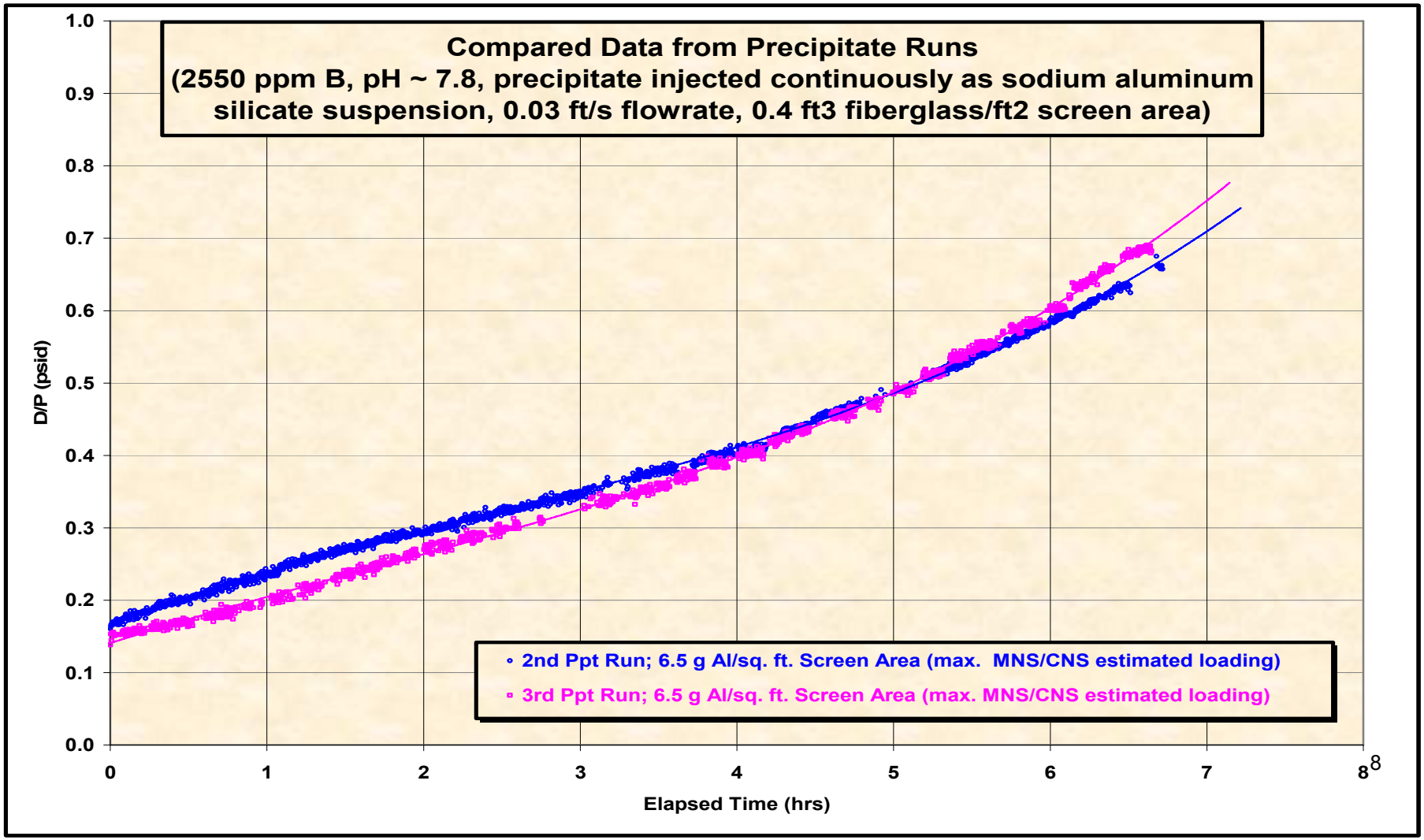
VFL Test with Precipitates



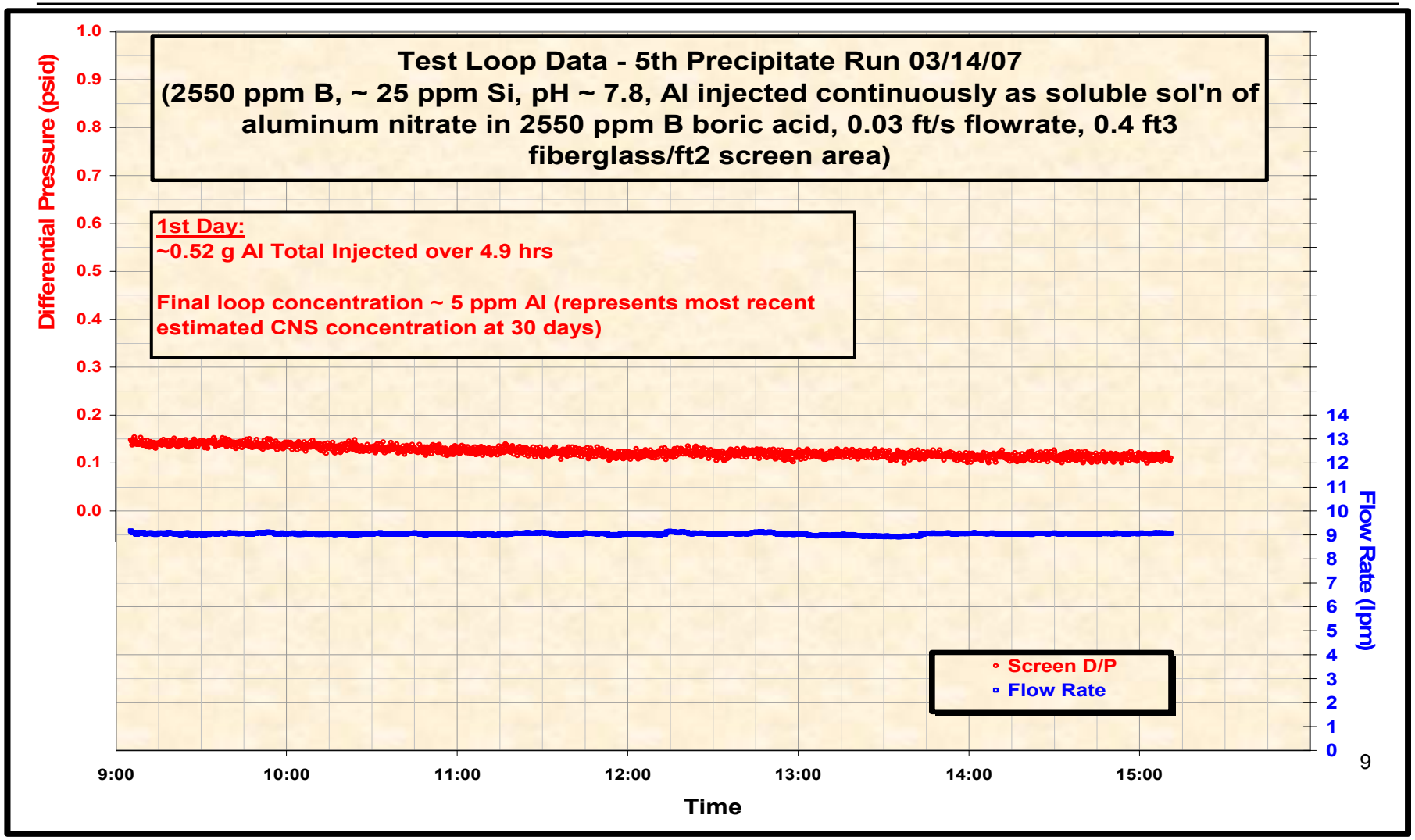
VFL Test – Fiber Insulation



VFL Test with Precipitates



VFL Test with Soluble Species



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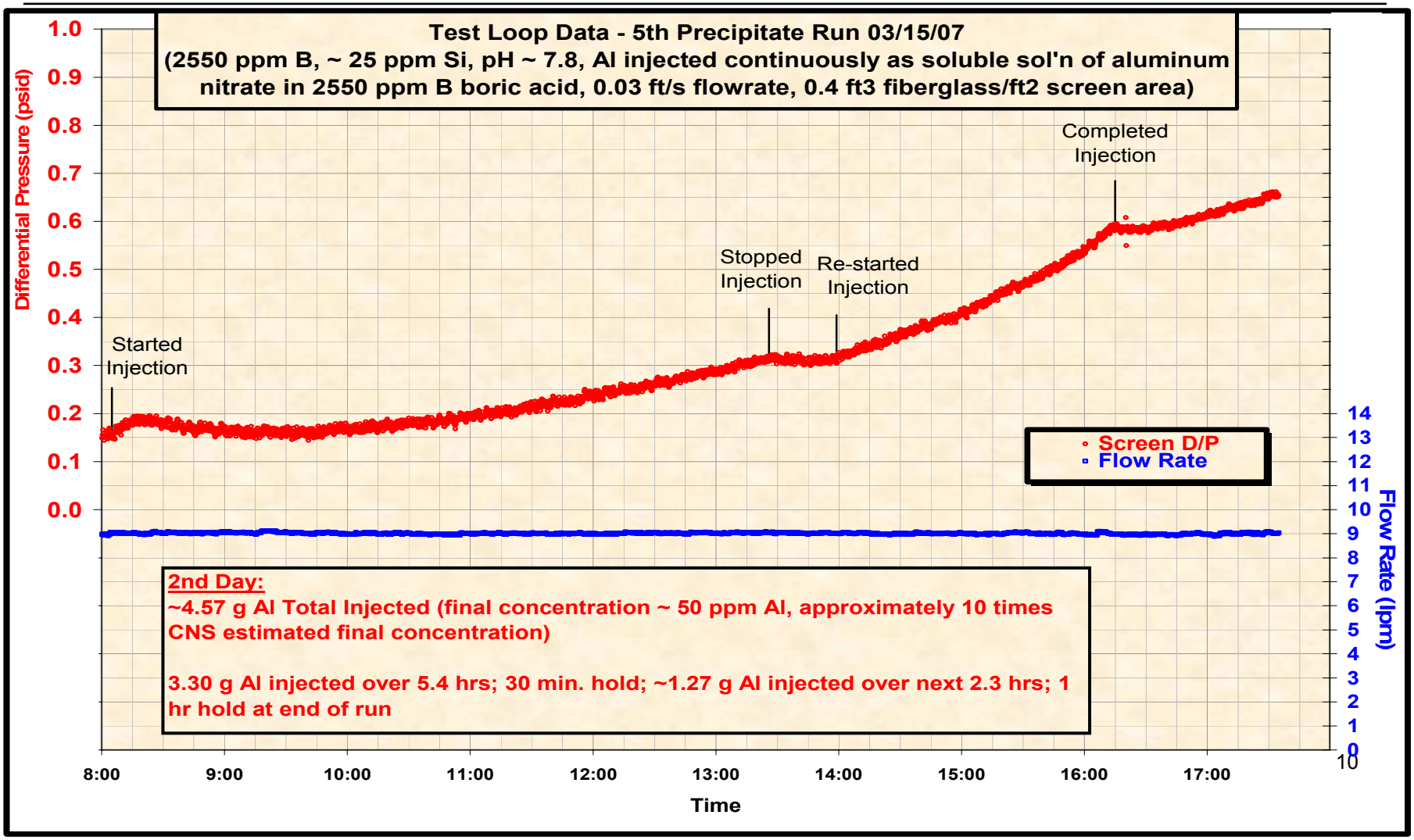

Additional Items Underway or Being Considered

- Fiberglass leach testing to verify aluminum leach data
- Additional long term (to 48 hrs) aluminum corrosion rate testing at 275°F (pH 7.2, 4.5) and 150°F (pH 7.2) in sodium borate phosphate environment
- Precipitate generation testing by titration
- Additional VFL testing at higher temperatures and for longer durations using prepared precipitates and soluble components