MEMORANDUM

TO: Dan Blankenship/RFTA
CC: Mike Hermes/RFTA
FROM: Tony Haschke/SGM
DATE: October 5, 2016**; Updated:** December 13, 2016
SUBJECT: CNG Support

Project Summary

The purpose of this project is to support the Roaring Fork Transportation Authority (RFTA) in its effort to maintain the CNG-related safety components at the GMF.

Executive Summary

Inspections were conducted and there are no significant areas of concern to report.

Noteworthy issues include:

- Two alarms occurred during power outages. Staff interviewed went to evacuation areas per the evacuation protocol. Per discussions with staff, the fire department did not stop at the bottom of the hill and turn off the manual natural gas valve per emergency protocol on either of these alarms. It is recommended to review emergency protocol with the fire department. The manual valve needs to be turned off when an alarm occurs and dispatches the fire department. **Update: SGM discussed this issue with Ron Biggers of GSFD. Fire crews visited the site and met with staff to locate the valve at the bottom of the hill and update their response protocol.**
- Building maintenance staff continues to do a commendable job keeping equipment maintained so that CNG fueling is safe and as uninterrupted as possible. They are transitioning into using Trapeze reports and possibly using tablets to record information on the fly. This should streamline maintenance and provide better access to information. **Update: the maintenance log had some new forms that appear to be generated from the Trapeze software.**
- Staff that was interviewed about safety protocol generally was well informed. **Update: When interviewing the drivers they have limited knowledge of the CNG alarms, colors of strobe lights related to CNG (blue), and who gets called during an alarm. Many drivers said they are given too much information during training to remember all aspects. SGM recommends quarterly or semi-annual refresher trainings for CNG safety protocols for the drivers. SGM will contact John Filippone to discuss training options.**
- Grimes Service Co. Inc. (GSC) has subcontracted its equipment maintenance tasks to Al Ray's Heating and Air, Inc. (AR). There were Grimes Inspection Reports and Al Rays Heating and Air inspection reports to review. *One tube heater in the south wash bay needed an ignitor replaced.*
- **Update: An outside vendor was onsite during our December 9th monthly inspection. One member of the crew was smoking near the building in a non-designated smoking area. The vendor was installing new phone towers on the roof. SGM representatives discussed with the vendor the explosiveness of CNG and the potential for a disaster if smoking occurred on the roof. SGM showed them the designated smoking area. The vendor affirmed that this would not happen again.**
- **SGM also discussed with Dan Blankenship the possible need for a document to be shared with outside contractors, visitors, vendors, etc. to be used as a checklist to inform them of dangers of CNG and make them aware of the safety policies at the GMF**

Facility. SGM will draft the initial document and send to Blake and/or Orlan for their input and approval of the checklist.

- **After reviewing the inspection log book, SGM noted that as of December 9, 2016, monthly inspections by RFTA staff are overdue for the following items:**
    - **Rooftop Fans – Latest inspection was logged in November 2016**
    - **Overhead Doors – Latest inspection was logged in November 2016**
    - **Air Compressors – Latest inspection was logged in September 2016**
- **SGM also noted that on December 4, 2016, the inspection log book reflected the following:**
    - **1 of 4 of the infrared heaters were working properly in the fueling bay.**

Unannounced Safety Inspection Summary

Task: At least once a month, confirm safety procedures are being followed by on-site observation. Procedures include use of fuel bay and maintenance bays.

Progress Report: Since the last report, fueling, vehicle maintenance, building maintenance, driver and administration staff on duty at the time was randomly surveyed with the questions listed in the 'Inspection Checklist'. In general, all staff was familiar with CNG safety protocol and was adhering to CNG procedures as outlined in the training manual. RFTA staff has consistently 'passed' inspections.

Hearing protection is provided at the CNG fueling dispenser, but it appears that it is not used. While this is unrelated to CNG safety, encouraging its use would benefit staff and RFTA.

Quarterly Safety Inspections

Tasks:

1. Review maintenance checklists and methane detector calibration record completed by RFTA staff and/or contractors: Confirm whether maintenance and methane detector calibration is being documented regularly. *Yes to maintenance performed by RFTA staff.*

2. Review contractor bids and/or invoices: Verify that costs and billing are justified. *No invoices were present this time period.*

3. Physical inspection of equipment: Confirm whether maintenance is occurring regularly and that it is being performed properly. Inspected equipment includes CNG-related HVAC equipment, overhead doors, methane detectors (visual inspection only), horns and strobes, emergency generator and BAS system. *Spot visual inspection of equipment and maintenance records indicates that maintenance is being completed.* **Update: SGM needs log on credentials for the BAS system review.**

4. Functional testing of the sequence of operations: Confirm whether the sequence of operations for CNG safety components as listed in the Emergency Response Plan is functioning as intended. This test will include setting off one methane detector for the sole purpose of verifying sequence of operations.

5. Run and review trend logs from BAS: Identify any irregular operations or malfunctions through the review of trend logs.

Progress Report: GSC was contracted to perform quarterly service to equipment, which is now subcontracted to AR. RFTA Facilities Maintenance staff also performs daily, monthly and quarterly maintenance. RFTA staff has maintained its increased maintenance inspection interval from monthly to daily on several components that are critical to the CNG safety system.

All work appeared to be performed as required and there are no obvious signs to the contrary. RFTA staff maintenance logs were thorough and indicated no obvious signs of system failure. RFTA Staff changed the air filters and changed or adjusted belts in August on all the AHUs, MAUs and exhaust fans.

Annual Safety Inspections

Task: Physical test of all methane detectors: Conduct 20% and 40% test of all methane detectors.

Progress Report: This inspection was conducted on January 8, 2016. The calibration by GSC was completed per manufacturer's recommendations.

Inspection Summary

CNG Support Inspection Report						
#	Inspection	Freq.	Pass/ Fail	Date	Inspector	Recommendation
1	Fueling procedures	Mnthly	pass	9/7/2016, 12/13/2016	Tony H Ty C /SGM	
2	Vehicle maintenance procedures	Mnthly	pass	See above	Tony H Ty C /SGM	Ensure new employees are reminded about CNG safety procedures.
3	Building maintenance procedures	Mnthly	pass	See above	Tony H Ty C /SGM	Continue to transition to EAM system with mobile devices
4	Grimes Service & Al Ray's			9/2/2016		
a	Electronic detector testing	Qrtrly	pass	9/2/2016	GSC	Due again in December 2016
b	EF & MAU Maintenance	Qrtrly	pass	9/8/2016	AR	Due again in December 2016
c	Sequence of Operations testing	Qrtrly	pass	9/2/2016	GSC	Due again in December 2016
d	BAS trend log review	Qrtrly	pass	9/2/2016	GSC	Due again in December 2016
e	Report communication	Qrtrly	pass	9/2/2016	GSC	Due again in December 2016
5	Trillium Service	Qrtrly	n/a			None at this time.
6	Physical detector testing	Annual	n/a	1/8/2016	GSC	Due again in December 2016
7	Other					

Inspection descriptions:

1. Verify that RFTA staff follows fueling procedures as outlined in 'Mechanics Training Manual for Compressed Natural Gas (CNG) Transit Vehicles' (CNG Training Manual).
2. Verify that RFTA staff follows vehicle maintenance procedures as outlined in the CNG Training Manual.
3. Verify that RFTA staff follows best practice maintenance procedures as outlined in 'GMF Maintenance Manual'.
4. Verify that Grimes Service Company, and now Al Rey is complying with its preventative maintenance contract as outlined in its May 1, 2013 Scope of Work.

5. Verify that Trillium CNG is complying with its service contract as outlined in its Exhibit D. Physically test methane detection system with gas.
6. Miscellaneous