

ERRATA SHEET

(November 4, 2014)
for the Document Titled:

Recommendations to the California Public Utilities Commission
Regarding Health Protective Standards for the
Injection of Biomethane into the Common Carrier Pipeline (May 15, 2013)

Prepared by Staff of the
California Air Resources Board and the
Office of Environmental Health Hazard Assessment

As of November 14, 2014, the following errata to the *Recommendations Report to the CPUC* are corrected or clarified below. Additions to the document below are shown in underline, and ~~deletions~~ in ~~strikeout~~.

Recommendations Report to the CPUC

1. Title page: "Office of Environmental Health Hazard Assessment."
2. Page 62: "Briefly, the approach used by ARB staff for risk management was to use the OEHHA health protective levels as the "trigger" for requiring routine monitoring of a constituent of concern. If an individual constituent of concern was determined to be present in the upgraded biomethane at a concentration that would result in either a potential cancer risk of ≥ 1 in a million or a hazard quotient of ≥ 0.1 , then that constituent would be subject to quarterly monitoring. For brevity, these constituents of concern will be referred to as "group 2" compounds (while constituents of concern below the trigger level will be referred to as "group 1" compounds). Upon each quarterly monitoring event, the operator is to determine the total collective potential cancer risk and hazard index for the group 2 compounds ~~constituents~~ of concern subject to monitoring and verify if the risk levels are below the lower action level (potential cancer risk ≥ 10 in a million or a HI of ≥ 1). If the total risk levels exceed the lower action levels 3 times in a 12-month period, the biomethane flow to the pipeline would be shut off (typically diverted to a flare) and the operator would need to determine how to bring the measured levels in the biomethane to below the lower action level. If at any time

the total potential cancer risk or hazard index for the group 2 compounds constituents of concern subject to monitoring were to exceed the upper action level (potential cancer risk ≥ 25 in a million or a HQ ≥ 5) the facility would also be subject to shut down.”

3. Page 63: “ARB staff’s recommended monitoring and testing requirements are based on the risk range that the constituents of concern fall under. Quarterly monitoring is recommended for any constituents of concern that exceed the trigger level identified for that compound (i.e., group 2 compounds). Operators are then required to determine the total potential cancer and non-cancer risks for all the group 2 constituents of concern that are subject to quarterly monitoring. If the combined risk exceeds the upper action level, or the lower action level three times in a 12-month period, then the flow to the pipeline must be shut off.”
4. Page 64: “ARB staff recommends that initial monitoring be conducted prior to the first injection of biomethane into the pipeline, and then periodic testing be performed. The frequency of the periodic testing would be dependent on whether the individual constituents are group 2 compounds above the trigger levels, and the collective total potential cancer and non-cancer risks associated with all the group 2 compounds constituents of concern above the trigger levels.”
5. Page 66: “During the pre-injection testing, if any the collective cancer or noncancer risk from the group 2 compounds constituents of concern in the biomethane is found to be above the lower action level, as listed in Table ~~IV-3~~ V-3, then the biomethane cannot be injected into the natural gas pipeline and the operator should make modifications to the upgrading system to lower the concentrations of the constituent of concern to levels below the lower action level.”
6. Page 66: “If all the constituents of concern in the biomethane are found to be below the trigger level detection level or the collective cancer or noncancer risk from the group 2 compounds is measured in concentrations below the lower action level in both pre-injection tests, then the biomethane may be injected into the common carrier pipeline, subject to compliance with the periodic testing requirements specified below.”
7. Page 66: “Shut-off of biomethane to the pipeline due to testing that indicates a total potential cancer or non-cancer risk for the group 2 compounds constituents of concern in biomethane above the upper action level, or 3 exceedances of the lower action level in a 12 month period.”

8. Page 67: “Under a modified startup procedure, it would not be necessary to conduct two tests over a 2-4 week period prior to reintroducing the biomethane into the pipeline. If the first test demonstrates that the collective cancer or noncancer risk of the group 2 compounds ~~all the constituents are~~ is below the LAL then injection can resume and it is not necessary to retest prior to injection. However, all the constituents of concern would be reevaluated with regard to periodic testing. This would mean compounds that may have been tested biennially (because they were found to be below a trigger level twice in annual testing) or annually (because the compound is part of a group of compounds whose collective risk below the lower action level four consecutive times –see group 2 compounds below) would have to again go through the testing required to demonstrate eligibility for less frequent testing.”
9. Page 67: “The total potential cancer risk for group 2 compounds can be estimated by summing the individual potential cancer risk for each carcinogenic constituent of concern found in Table V-3. Specifically, the cancer risk can be calculated using the ratio of the concentration of the constituent in biomethane to the health protective (“trigger”) concentration value corresponding to one in a million cancer risk for that specific constituent found in Table ~~V-3~~ V-3, and then summing the risk for all the group 2 constituents.”
10. Page 68: “If, in a 12 month period, there are three exceedances of the lower action level for the group 2 compounds ~~constituents of concern~~ (with the exceedances being lower than the upper action level), the operator will shut off the supply of the biomethane and determine necessary adjustments to bring the potential cancer risk and non-cancer hazard ~~risks~~ for the constituents of concern to levels below the lower action level.”
11. Page 68: “If any test result indicates the potential cancer or non-cancer risks for the group 2 compounds ~~constituents of concern~~ is above the upper action level, the operator will shut off the supply of the biomethane to the pipeline and determine necessary adjustments/modifications to bring the potential cancer risk and non-cancer ~~risk~~ hazard levels to below the lower action level.”

13. Page 69: In the flow chart, the “greater than” signs (“>”) used for cancer risk and chronic hazard index should be “greater than or equal to” signs (“≥”) as shown in the revised flow chart below.

