

- 1) The sampling shall be done at all locations where Liquids are present and we have a drip or other device that will allow a sample to be drawn. We recommend that District or Division personnel obtain or draw all samples.
- 2) Obtain "Nalgene" or equivalent sample containers and labels from VWR Scientific Co. (1-800-932-5000) ahead of any liquid sampling. TLS, who will be conducting the testing, has their chain of custody form available at the following URL: [file:///GO313/ES/EA\\_Web/Library/62-1174.doc](file:///GO313/ES/EA_Web/Library/62-1174.doc) <\\GO313\ES\EA\_Web\Library\62-1174.doc> on the PG&E Environmental Affairs Website.
- 3) The chain-of-custody form is the best way to track the testing process. Two containers will be used for each sample site where liquids are obtained.
  - a. 60 ml containers for MIC; VWR Cat #16124-982 (\$22.00 for 12)
  - b. 500 ml containers for anions, metals, etc; VWR Cat #16124-988 (\$54.00 for 12)
- 4) The sample should closely resemble the bulk fluid composition. Therefore, in order to remove striated material, blow the system first - for several seconds. Be sure to blow it into an appropriate container (truck, drum, bucket, etc.).
- 5) After the initial blow, retrofit the line if need be to allow a sample to be collected into the container. This may require a carboy with a bottom spigot, or equivalent, in order to capture the liquid. Some photographs of a sample Carboy are attached. If you do use an intermediate device to capture the liquids before depositing it into the container, then for the MIC sample the intermediate device must be cleaned and sterilized with alcohol after each sample is taken.
- 6) Obtain at least 500 ml of sample for chemical analyses of metals and anions, and another 60 ml sample for Microbial testing, as itemized above in item 2. Again, each sample location will have a total of 2 bottles of liquid captured for various analyses.
- 7) Be sure to fill the bottles as completely as possible - the idea is to eliminate the air space in the containers as any air present above the surface of the liquids could alter the test results. Be sure lid is on tightly.
- 8) With the lid on, let the fluids separate in the 500 ml container and then immediately take the pH OF THE WATER PART (if any) using either pH paper or an electronic instrument. At this point we will only be testing the water portion of any sample drawn for both MIC and for composition, as it is the most corrosive of the liquids known to be in our pipelines. All other samples, such as oil, glycol, condensate, and production fluids will only be tested for MIC (bugs).
- 9) Fill out the TLS chain of custody form. Properly label each of the containers with the same information - Sample Location, Pipeline #, Approx MP, Date, Time, etc. This is important so the test data can be identified with the proper sample.
- 10) As soon as possible store all samples at approximately 40° F in order to preserve them - do not freeze the samples. DO NOT use the same refrigerator that has food in it. A dedicated sample refrigerator should be obtained and located in the shop facility. TLS personnel may be able to pick up the samples, or alternatively, they can be driven or shipped in an ice chest to the San Ramon facility. The chilled samples should get to the TLS Lab within 4-hours, but not to exceed a 24-hour period. Include the completed "chain-of-custody" form. Put a note on the chain of custody form that you would like test results sent to you (the District or Division) and to DJAguiar, and RPFassett.
- 11) It is the District/Division's responsibility to provide order numbers for the TLS people to perform the work. The cost for TLS to test each location (1 MIC test and 1 chemical test) is approximately \$500.00 (the MIC test is \$300.00 and the chemical test is \$200.00). We recommend you gather all the samples one day and get them to TLS the next day, at the latest. More accurate test results are achieved when minimal time elapses between drawing the samples and testing them.
- 12) The primary TLS contact should be Vilma Balbuena (backups are Peter Haight, then Clem DaSilva). All work in the TLS Chemistry Lab.

1) [REDACTED]  
PGE TLS Chem Dept  
3400 Crow Canyon Rd  
San Ramon, CA. 94583  
[REDACTED]

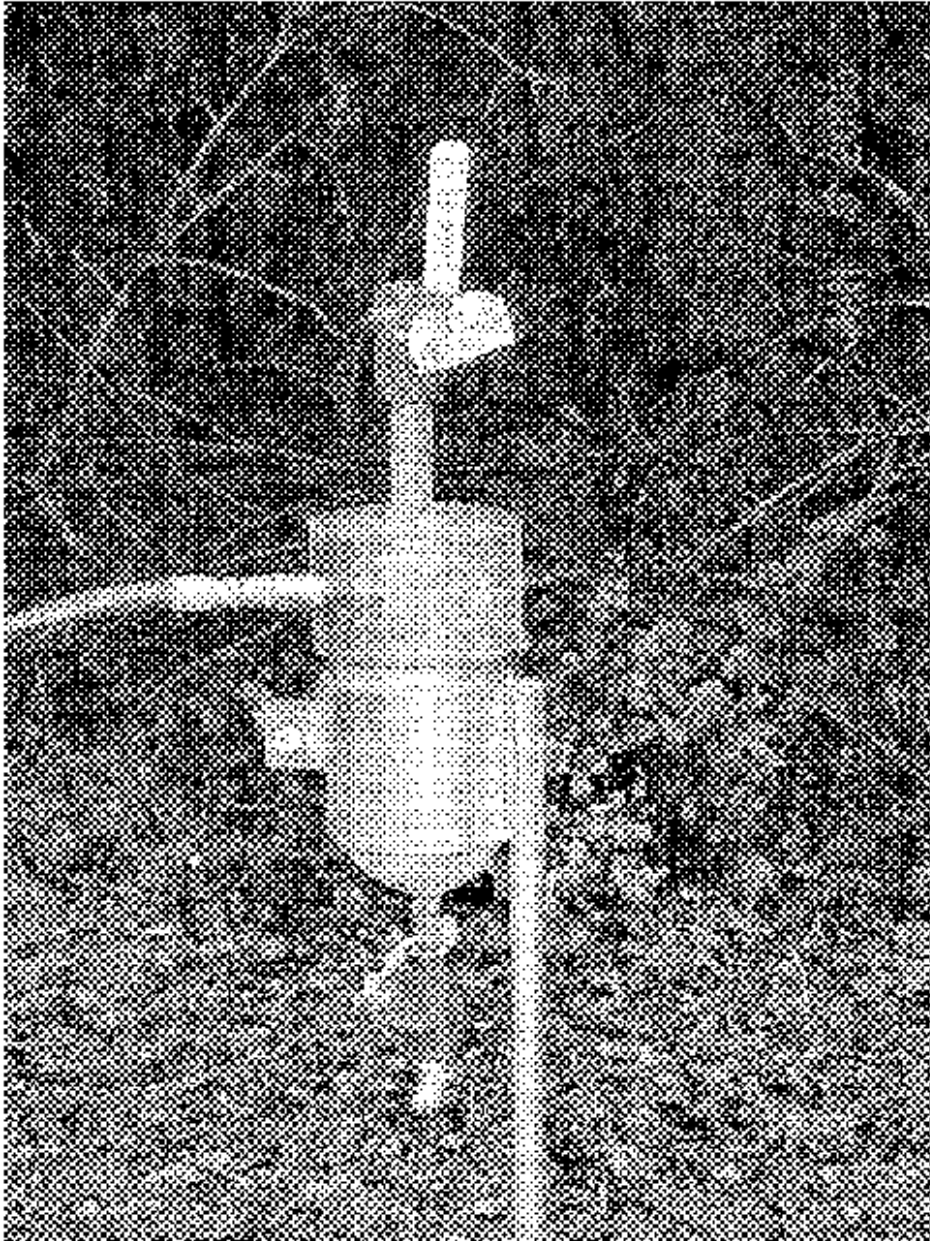
2) [REDACTED]  
PGE TLS Chem Dept  
3400 Crow Canyon Rd  
San Ramon, CA. 94583  
[REDACTED]

3) [REDACTED]  
PGE TLS Chem Dept  
3400 Crow Canyon Rd  
San Ramon, CA. 94583  
[REDACTED]

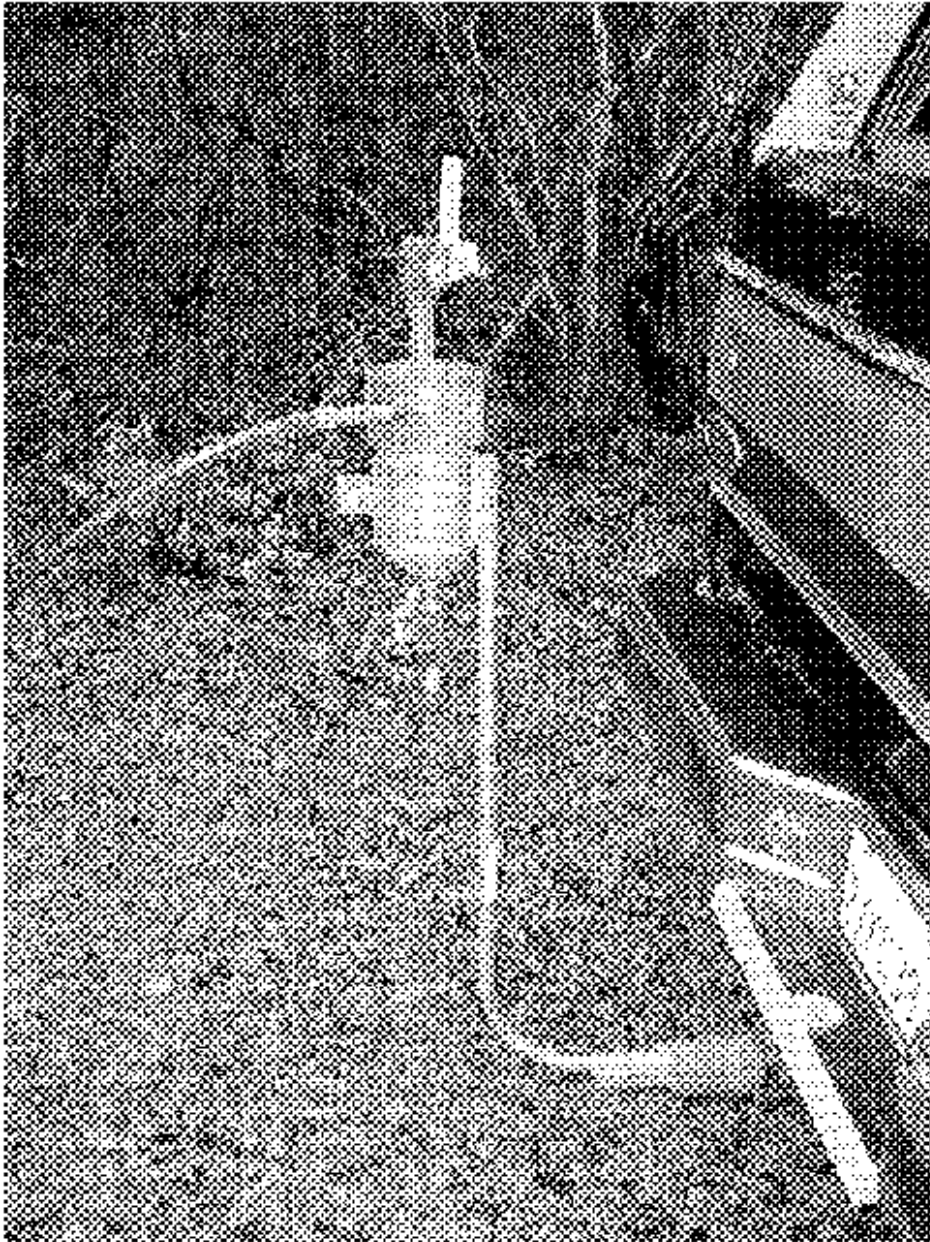
- 13) TLS will e-mail the Chemistry results usually within 5 days and no longer than 10 days after receipt. The microbial testing takes 28 days to incubate after they are received and properly inoculated. This means that we will not get any MIC results for approximately a month. To avoid delays, the two reports for the same sample location will have to be separate reports.
- 14) Any test results that are outside the acceptable limits should be retested to confirm the result, and if confirmed it will require an action plan (this is very similar to getting a Pipe-to-Soil result below 850 mV on - the P/S is retaken to confirm before developing an action plan). The action plan could specify additional testing, mitigative action, or both. With regard to mitigation, one standard mitigative action is to begin injection of a corrosion inhibitor at specified rates. Additional testing may consist of installing corrosion coupons to determine if there is actual wall loss. The Internal Corrosion Engineer shall be available as needed to consult on specific mitigation plans at the discretion of the operating District or Division. All mitigation plans initiated by an out of specification liquid test results shall be documented on the form "Evaluation & Mitigation Plan for Internal Corrosion Assessment", Form FO-16-G, filed in the operating department compliance file, and e-mailed to the Internal Corrosion Engineer.

[REDACTED]  
CGI Corrosion Engineer

[REDACTED]  
Revised Sept 2007.







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