

December 20, 1971

Mr. Ted L. Canfield  
Senior Project Manager  
Cathodic Protection Service  
P.O. Box 66387  
Houston, Texas 77006

Dear Mr. Canfield:

In reply to your letter of November 18, 1971, to Lance Heverly, following are our comments on your interpretation of certain sections of Subpart I, the corrosion part of our Federal gas pipeline safety standards.

Your letter states:

"(a) Bare piping (distribution or transmission) under influence of impressed current protective systems:

Initial survey and resurvey to consist of acquiring structure-to-earth potential measurements at maximum 20' intervals over the entire length of line or system being influenced by a given impressed current system. This resurvey procedure to be conducted on an annual basis.

(b) Bare piping (distribution or transmission) under complete protection with magnesium anodes (i.e., supposed protection of entire surface area):

Initial survey and resurvey procedure to be same as outlined above for bare piping under influence of impressed current protective systems."

It is our position that when a bare distribution or transmission pipeline is under full cathodic protection, regardless of whether the protection is provided by an impressed current type system or by galvanic anodes, the system must be checked at least once a year in accordance with Section 192.465(a) and the level of cathodic protection must meet the requirements of Section 192.463. We do not stipulate any distance intervals for making pipe-to-soil potential measurements.

Although checking at 20-foot intervals may be appropriate in some instances, conditions could be such that no less than continuous inspection would be necessary. Our requirement is that the cathodic protection system must protect the pipeline in its entirety. It is the operator's responsibility to determine what spacing is required between pipe-to-soil potential measurements to ensure that the pipeline is protected in its entirety. (If your firm is the consultant to a gas

operator, the operator will be looking to you for advice as to what spacing frequency is necessary to comply with the regulations.)

"(c) Bare piping (distribution or transmission) which has been electrically surveyed to determine areas of current discharge and subsequently provided with galvanic anode installations ("hot spot" protection) at points or areas of previously determined current discharge.

Resurvey procedure to consist of resurveying annually 10% of a given system or line to determine that the structure is receiving a net protective current at the previously determined current discharge points. A different 10% is to be surveyed each year so that the entire system will have been resurveyed within a ten year period.

Further, that, at intervals not exceeding three years, a complete survey to be conducted over the entirety of a given bare line or system under "hot spot" protection to reevaluate unprotected portions and protect where active corrosion is detected. (This would appear to be somewhat in conflict with the 10% per year resurvey program). By way of commentary here, we can see that this requirement as written could certainly prove to be very wasteful of scarce technical manpower. If the reevaluation survey is to be meaningful, so as to pick up the possibly one newly developed "hot spot" areas every three (3) years for each 100 originally detected, it must still be conducted as thoroughly as the original survey."

With regard to the first two paragraphs of your statement (c), we wish to point out that the 10% resurvey per year applies only to separately protected service lines or to separately protected short sections of mains not in excess of 100 feet (Section 192.465). The 10% resurvey does not apply to "hot spot" protection. Monitoring tests of "hot spot" protected sections of electrically continuous pipelines must be made each year. (After all, this would require less work than checking a bare pipeline that is cathodically protected in its entirety using galvanic anodes as described in your statement (b).)

With regard to the third paragraph of your statement (c), when "hot spot" protection is involved, the operator must resurvey his bare pipeline at intervals not exceeding three years, and provide cathodic protection in each area where active corrosion is found (Section 192.465(e)).

Your letter also asked about the estimated date when the existing HM-6 code for liquid pipelines will conform to the present natural gas code in respect to corrosion control. Although we may in the future make those requirements essentially the same, we do not at this time have a schedule for the necessary rule-making action. However, in regard to the questions which you have raised, the two codes are quite similar. In the case of gas pipelines, complete resurveys are required every three years instead of every five years as required for liquid pipelines.

In response to your question about gathering lines, the Natural Gas Pipeline Safety Act of 1968 requires that gathering lines in non-rural areas must meet our safety regulations. Section 2(3) of the Act gives a detailed explanation of non-rural locations (copy of Act enclosed).

I trust this information will be helpful to you.

Sincerely,

Joseph C. Caldwell  
Acting Director  
Office of Pipeline Safety

Enclosure

cathodic protection service

November 18, 1971

Office of Pipeline Safety  
Dept. of Transportation  
800 Independence Ave., S.W.  
Washington, D.C. 20590

Attention: Mr. Lance F. Heverly  
Asst. Chief, Technical Division

Gentlemen:

Our present understanding of intent of contents of Title 49, Part 192, Subpart I - Requirements for Corrosion Control, with respect to survey and resurvey procedure for bare piping systems are set forth below. Your concurrence or correction of our interpretation is solicited.

- (a) Bare piping (distribution or transmission) under influence of impressed current protective systems:

Initial survey and resurvey to consist of acquiring structure-to-earth potential measurements at maximum 20' intervals over the entire length of line or system being influenced by a given impressed current system. This resurvey procedure to be conducted on an annual basis.

- (b) Bare piping (distribution or transmission) under complete protection with magnesium anodes (i.e., supposed protection of entire surface area):

Initial survey and resurvey procedure to be same as outlined above for bare piping under influence of impressed current protective systems.

- (c) Bare piping (distribution or transmission) which has been electrically surveyed to determine areas of current discharge and subsequently provided with galvanic anode installations ("hot spot" protection) at points or areas of previously determined current discharge.

Resurvey procedure to consist of resurveying annually 10% of a given system or line to determine that the structure is receiving a net protective current at the previously determined current discharge points. A different

10% is to be surveyed each year so that the entire system will have been resurveyed within a ten year period.

Further, that, at intervals not exceeding three years, a complete survey to be conducted over the entirety of a given bare line or system under "hot spot" protection to reevaluate unprotected portions and protect where active corrosion is detected. (This would appear to be somewhat in conflict with the 10% per year resurvey program). By way of commentary here, we can see that this requirements as written could certainly prove to be very wasteful of scarce technical manpower. If the reevaluation survey is to be meaningful, so as to pick up the possibly one newly developed "hot spot" area every three (3) years for each 100 originally detected, it must still be conducted as thoroughly as the original survey.

In addition, is there available an estimated date at which time the existing HM Code for liquids will conform to the present Code for Natural Gas Pipelines with respect to corrosion control?

It would appear at this time that gathering system piping is excluded from Subpart 1 of the Code. Is this the intent or does the exposure to critical class location determine necessary compliance?

Your cooperation in providing the requested information will be greatly appreciated and will enable us to better assist our clients in conforming to the code requirements.

Very truly yours,

CATHODIC PROTECTION SERVICE

Ted L. Canfield  
Senior Project Engineer