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May 20, 2024

Mr. Ken Tutt
Project Representative
Nutrien Ltd.
Swift Creek Mine Float Plant
15843 SE 78th Street
White Springs, Florida 32096-2703

RE: CATHODIC PROTECTION SURVEY
SCM FLOAT PLANT
2024 RECOMMENDATIONS

Dear Mr. Tutt;

Please review the general recommendations concerning the results of the Nutrien Ltd. – Swift Creek Mine Float Plant cathodic protection survey, performed beginning May 17, 2024. The following recommendations were cited during this inspection:

- Obtained cathodic protection measurements indicate approximately 100% of the steel gas system piping components currently meet or exceed the minimum CP requirements required by State and Federal regulatory agencies.
- Cathodic Test Point #3 is severely damaged with no remedial action taken since discovery of this damage during the 2022 cathodic protection survey. CP Technician Whitfield excavated soil at the base area of destroyed Test Point and located lead wires for readings. Recommend replacement and relocation of this CTP and corroded lead wires.

I trust the information to be in sufficient detail, however, should you require additional information or would like to discuss these recommendations, please contact me. A copy of this report is available online at www.cityservices.biz. Click on Clients → Nutrien → Corrosion Surveys. To obtain or change your username and password, contact us at 229.226.6569.

Sincerely,

A handwritten signature in black ink that reads 'W. L. Hays'.

W. L. Hays
CITY SERVICES, INC.



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NUTRIEN LTD. SCM Float Plant

CATHODIC PROTECTION SURVEY
MAY 2024

CATHODIC PROTECTION SURVEY
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NUTRIEN
SCM
SWIFT CREEK MINE
FLOAT PLANT

2024

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May 2024

Nutrien Ltd.
Swift Creek Mine Float Plant
15843 SE 78th Street
White Springs, Florida 32096-2703
ATTN: Mr. Ken Tutt
Project Representative

SCM Swift Creek Mine Float Plant
2024 Cathodic Protection Survey

Effectiveness of Underground Cathodic Protection

INTRODUCTION

The annual cathodic protection survey was conducted for Nutrien Ltd. – Swift Creek Mine Float Plant beginning May 17, 2024. During this survey, the Swift Creek Mine Float Plant natural gas system was inspected for the effectiveness of cathodic protection, as applied. The cathodic protection system for the Swift Creek Mine Float Plant consists essentially of Galvomag Magnesium anodes placed in various locations throughout the natural gas system.

RESULTS AND ANALYSIS

| | | | |
|--------------------------------|----|-------------------------|------|
| CATHODIC PROTECTION READINGS: | 12 | GAS CASING PIPE REAINGS | 6 |
| GALVOMAG ANODE / CTP READINGS: | 2 | COMPLETE PROTECTION: | 100% |

A total of Twelve [12] cathodic protection voltage readings, Two [2] Galvomag anode / CTP readings, Four [4] gas casing pipe readings and Six [6] gas pipeline readings were taken during this survey. As can be seen by the structure-to-soil potential measurements and the enclosed data sheet, 100% of the gas pipeline readings obtained are indicative of cathodic protection. A structure-to-soil potential of 850 millivolts [-0.850] or more negative direct current is the basis used in this report to confirm cathodic protection.

SURVEY TEST INSTRUMENTATION

- Gas Electronics Model 601 Insulation Checker
- Fluke Model 71 Digital Multi-meter
- Tinker & Rasor 6-B Reference Electrode [CSE]
- Cu/CuSO₄ Reference Electrode Calibration 05/06/2024 – 2.1 Mv

IR DROP CONSIDERATION

Aging pipes and changing conditions can cause significant problems, such as an increase in applied CP levels and enlarged holidays in coating. In addition, increased environmental concerns also emphasize the need to minimize leaks as much as possible.

The effectiveness of any cathodic protection system can be determined by taking potential measurements between the structure and a reference electrode. These potential measurements have traditionally been recorded with “average reading” digital voltmeters while the protective current is flowing or applied. These potential measurements contain the error produced by the voltage drop in the soil (electrolyte resistance) and the voltage drop (current) in the structure being protected. This error is referred to as *IR* drop. Interpretation of a current applied measurement requires consideration of the significance of voltage drops in the earth and metallic paths.

An *IR* drop is a voltage across a resistance, in accordance with Ohm’s law ($V=IR$). Although there are several *IR* drops in a structure-to-electrolyte potential circuit, the *IR* drop of most concern is that which occurs between the reference electrode (half-cell) and the structure-to-electrolyte (pipe) boundary. This *IR* drop is due to a CP current in the resistance of the electrolyte and is an error in the measurement.

One way to reduce the *IR* drop is to bring the reference electrode close to the structure (pipe) to reduce the resistance of the electrolyte (soil). Another way to reduce the *IR* drop is to bring the current to zero by interrupting all sources of current (anodes) influencing that reference point at the same precise time.

RECOMMENDATIONS

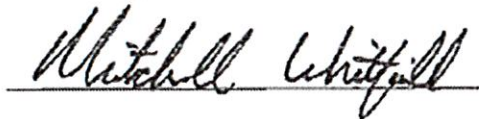
The sacrificial galvanic anode arrangement designed to protect the coated and wrapped steel natural gas system indicates adequate current to afford cathodic protection to the steel distribution system. Structure-to-soil readings obtained from Cathodic Test Points and gas risers on the steel distribution system indicate CP readings above State and Federal minimum standards of -0.850 volts direct current. Four [4] gas pipeline casings, Three [3] Galvomag anodes / Cathodic Test Points and Seven [7] gas pipeline contacts were inspected during this survey.

The coated and wrapped distribution main lines show a minimum structure-to-soil potential of -1.184 vdc and a maximum structure-to-soil potential of -1.658 vdc at various Cathodic Test Points in the Swift Creek Mine Float Plant distribution system. Continuity over the entire main line system is fair to good.

Cathodic Test Point #3 is severely damaged with no remedial action taken since discovery of this damage during the 2022 cathodic protection survey. CP Technician Whitfield excavated soil at the base area of destroyed Test Point and located lead wires for readings. Recommend replacement and relocation of this CTP and corroded lead wires.

At the time of survey, the Natural Gas Distribution System for Nutrien Ltd.'s Swift Creek Mine Float Plant complex indicates cathodic protection levels exceeding State and Federal minimum guidelines for applied cathodic protection. I trust the above information to be satisfactory and in sufficient detail, however, should you require additional information, please contact me.

Sincerely,



Mitchell Whitfield, CP Tester
City Services, Inc.

CATHODIC TEST POINTS

CATHODIC TEST POINTS (CTP)

Underground Natural Gas System

CATHODIC TEST POINT - #1

| | |
|-------------------------------|------------|
| Black Anode Connection | -1.382 Vdc |
| Black Gas Pipeline Connection | -1.402 Vdc |
| White Casing Pipe Connection | -0.630 Vdc |

CATHODIC TEST POINT - #2

| | |
|-------------------------------|------------|
| Black Anode Connection | -1.291 Vdc |
| Black Gas Pipeline Connection | -1.658 Vdc |
| White Casing Pipe Connection | -0.584 Vdc |

CATHODIC TEST POINT - #3

CTP #3 IS SEVERELY DAMAGED. TECHNICIAN EXCAVATED SOIL AT BASE OF CTP AND LOCATED LEAD WIRES FOR READINGS. RECOMMEND REPLACEMENT AND RELOCATION OF THIS CTP AND CORRODED LEAD WIRES.

| | |
|-------------------------------|------------|
| Black Anode Connection | -1.399 Vdc |
| Green Gas Pipeline Connection | -1.184 Vdc |

STRUCTURE-TO-SOIL POTENTIALS
GAS PIPE CASINGS

Structure to Soil Potential Data

Underground Natural Gas System

GAS PIPE CASINGS

| TEST LOCATION | ENERGIZED POTENTIAL VOLTS |
|-------------------------------|---------------------------|
| Black Anode Connection | -0.520 |
| Green Gas Pipeline Connection | -0.574 |

STRUCTURE - TO - SOIL POTENTIAL DATA

STRUCTURE – TO – SOIL POTENTIAL DATA

Underground Natural Gas System

| TEST LOCATION | ENERGIZED POTENTIAL VOLTS |
|-------------------------------|---------------------------|
| Gas Metering Station – Inlet | -1.199 |
| Gas Metering Station – Outlet | -1.237 |
| 4" Gas Riser @ Plant / Dryer | -1.399 |
| 2" Gas Riser @ Boiler Room | -1.352 |