

5

those of ordinary skill in the art that the invention is not to be limited by the foregoing disclosure, but is to be limited only by the scope and meaning of the appended claims.

I claim:

1. A method for obtaining information describing the corrosion protection status of a section of a pipeline provided with a rectifier electrically connected to said section of a pipeline, said method comprising the steps of:

measuring the current input and output, electrical potential, and level of applied cathodic protection of the electrical energy provided by the rectifier to the section of a pipeline;

transmitting said measurements of current input and output, electrical potential and level of applied cathodic protection to a low-level communication satellite;

retransmitting the measurements received by said low-level communication satellite to a management data center.

2. The method as defined in claim 1 further including the step of encrypting said transmitted signal from said rectifier.

3. A method for obtaining electrical output information from a remote pipeline rectifier, said method comprising the steps of:

monitoring the electrical current supplied to the remote pipeline rectifier;

monitoring the output amperage, output voltage and level of applied cathodic protection of the electrical energy supplied by the remote rectifier to the pipeline;

transforming said electrical current input and said output amperage, output voltage and level of applied cathodic protection into a transmittable signal;

transmitting said signal to a low-level communication satellite;

retransmitting the measurements received by said low-level communication satellite to a management data center.

4. The method as defined in claim 3 further including the step of encrypting said transmitted signal from said rectifier.

5. A method for obtaining electrical output information from a remote pipeline rectifier, said method comprising the steps of:

acquiring data on electrical input, output amperage, output voltage and level of applied cathodic protection from the remote pipeline rectifier;

transforming said data into a transmittable signal; transmitting said signal to a low-level communication satellite;

retransmitting said signal to a management data center.

6. The method as defined in claim 5 further including the step of encrypting said transmitted signal.

7. A system for monitoring the effectiveness of distributive cathodic protection of a pipeline comprising:

at least one rectifier for providing electrical energy to a pipeline;

means for acquiring electrical signal information associated with said electrical energy provided to the pipeline;

means for transmitting said electrical signal information to a low-level satellite;

means for retransmitting said electrical signal information to a management data center.

8. The system as defined in claim 7 further including means for encrypting said electrical signal transmitted to said low-level satellite.

6

9. A method for measuring the residual charge in a section of a pipeline having a corrosion protection system including a plurality of pipeline rectifiers which supply a continuous flow of electrical current to a section of the pipeline, said method comprising the steps of:

interrupting the flow of electrical current to a contiguous series of pipeline rectifiers covering a section of the pipeline;

measuring the residual charge in said section of the pipeline;

resuming the continuous flow of electrical current to said contiguous series of pipeline rectifiers covering a section of the pipeline;

transforming said measurement of the residual charge into a transmittable signal;

transmitting said transmittable signal to a low-level communication satellite;

retransmitting said signal to a management data center.

10. The method as defined in claim 9 further including the step of encrypting the transmittable signal.

11. A method for adjusting the corrosion protection of a section of a pipeline provided by a rectifier electrically connected to said section of a pipeline, said method comprising the steps of:

measuring the electrical input, output current flow, the output electrical potential, and the level of applied cathodic protection of the electrical energy provided to the section of the pipeline by the rectifier;

transmitting said measurements of electrical input, output current flow, output electrical potential and level of applied cathodic protection to a low-level communication satellite;

retransmitting said measurements received by said low-level communication satellite to a management data center;

comparing said measurements at said management data center to a preselected set of operational standards;

determining if any differences exist between said measurements and said operational standards;

transforming said differences into adjustment signals; transmitting said adjustment signals to said low-level satellite;

retransmitting said adjustment signals to the rectifier;

transforming said adjustment signals into changes in current flow, electrical potential and level of applied cathodic protection of the electrical energy provided to the section of the pipeline by the rectifier.

12. A method for adjusting the electrical output from a remote rectifier, said method comprising the steps of:

measuring electrical input, output amperage, output voltage and level of applied cathodic protection of the electrical energy output of the remote rectifier;

transmitting said measurements to a low-level communication satellite;

retransmitting said measurements to a management data center;

retransforming said signal into said electrical input, output amperage, output voltage and level of applied cathodic protection measurements;

comparing said measurements at said management data center to a preselected set of standard measurements;

determining if any differences exist between said measurements and said standard measurements;