

FILED
U.S. DISTRICT COURT
DISTRICT OF WYOMING

FEB 26 2010

Stephan Harris, Clerk
Cheyenne

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF WYOMING**

DRIVES & CONTROLS SERVICES, INC.,)
a Texas Corporation,)

Plaintiff,)

v.)

No. 08-CV-256-J

ELECTRICAL TECHNICAL SERVICE &)
REPAIR, INC., a Wyoming corporation,)
and AARON C. LUNBERG II, an)
individual,)

Defendants.)

ORDER DETERMINING COPYRIGHTABLE SUBJECT MATTER

A hearing concerning copyrightable subject matter in the software works at issue in this case was held February 22, 2010. At the hearing, counsel presented their arguments, and the testimony of Robert D. Davis and Aaron C. Lunberg was presented. The court has considered the parties' arguments, the evidence and testimony presented during the hearing and is fully advised in the premises. In accordance with the Court's oral ruling from the bench, as reflected more fully in the record of the proceedings, the Court finds and

concludes as follows:

1. DCS provides electrical services including installing, repairing and servicing electrical motors and controls for walking draglines at surface mines. DCS also designs and implements software programs for Programmable Logic Controllers (PLC) that operate draglines. A PLC is a computer used in various industrial settings such as mining operations.

2. At issue in this case is a program used for a particular piece of equipment, a walking dragline used at surface mines. The plaintiff, as is the defendant, is in the business of providing electrical services for installing and repairing servicing electrical motors and controls for these surface mine draglines.

3. Plaintiff asserts that it has designed and implemented software programs for PLCs that operate these draglines.

4. PLCs were variously described during the hearing. The Court found the discussion offered by defense counsel during the hearing helpful in that regard, as was the model presented by defendant Lunberg and his discussion regarding the use of cards during his testimony. One description of the PLC analogized it as being similar to a VCR input command executed by a circuit board. Plaintiffs' expert Davis described PLC as a type of computer that has

RAM, CPU processor and that executes instructions given to it.

5. DCS was retained by Vulcan Materials Co. to develop a software program to operate certain functions, including operating motors and controls, on a BE 680W dragline and corresponding user interface. One of these programs was a ladder logic program that resides in the PLC to operate the dragline; the other program was a human machine interface (HMI), which is a graphical display enabling a human operator to interact with the PLC.

6. DCS registered these works with the United States Copyright Office ("the DCS Works"). Reg. No. TXu 1-588-237, titled AC Digital Drive Dragline PLC Program, claims originality in PLC software for operation and sequence on an AC digital dragline ("Vulcan PLC Code"). Reg. No. TXu 1-588-236, titled "AC Digital Drive Operator Interface," claims originality in the compilation and screen displays ("Vulcan HMI Displays").

7. In creating these programs, products developed by Rockwell Automation were used. The Vulcan Program was written in ladder logic language that is a code readable by PLC. Rockwell Automation RSLogix 5000 program was employed to write the Vulcan PLC program.

8. The ladder logic program provides a significant amount of programmer discretion and choice. As explained by both Davis and Lunberg, training and

experience of the programmer, the needs of the customer, limitations of the machine, safety concerns all affect and influence the discretion employed by the programmer in drafting these programs.

9. Through the ladder logic examined during the hearing, more specifically Exhibit 173 and discussed in detail through the testimony of Robert Davis, it was evident that choices were made in the instructions and tags that were inserted to implement the logic. Choices were made as to how many rungs might be needed for a particular operation, as to identification of inputs and outputs, which instructions to use and how to interrelate those instructions to run all functions of the dragline at the mining operation.

10. The code for the PLC is set forth in a main program, divided into 42 different subroutines, as well as a further 5 subroutine Lube program. Choices were made by the programmer regarding how many subroutines there would be and as to their organization.

11. DCS produced the unique software code that includes the Vulcan PLC code tags, tag descriptions, input points, output points, and instructions. Input and output tags were created of a descriptive nature that might assist someone with troubleshooting input and output points. DCS chose which instructions to link to tags. DCS sequenced and arranged these items together on 417

separate rungs to create a functional PLC program.

12. There was no testimony at all during this hearing that industry standard, hardware requirements, software requirements, or publicly available material dictated the choice, selection or arrangement of ladder logic code written in the Vulcan PLC program.

13. The HMI represented by the displays enable human operators to interact with the PLC program and allow the operator to control the dragline, similar to a car dashboard. The HMI was developed using Rockwell Automation's RSView 32 software.

14. Choices were made as to what information to display, background styles, sizes, colors, text, text font, icons, text sizes and graphical elements on the HMI display.

15. DCS created tags for Vulcan HMI linking tags to Vulcan PLC code. DCS chose values and data points to choose for display in the Vulcan HMI.

16. There was no testimony about industry standard or hardware requirements, software requirements or publicly available material dictating the contents of the HMI display.

17. Computer programs can be abstracted at least six levels of generally declining abstraction, including (i) the main purpose of the program (which is

generally not copyrightable), (ii) program structure or architecture, (iii) modules, (iv) algorithms and data structures, (v) source code and (vi) object code. Gates Rubber Co. v. Bando Chemical Industries, Ltd., 9 F.3d 823, 835 (10th Cir. 1993) . There was no discussion of the binary object code at the hearing. The source code, if represented by tags and input and output points, were discussed at length during the hearing. They represented the instructions that would operate this system. Copyright protection extends not only to source or object code, but also to program architecture, structure, sequence, organization and computer-user interface. Id.

18. Under Gates Rubber, the Court must also filter out the elements of the program not protected by copyright. Such elements include information in the public domain, scenes a faire, i.e., expressions that are standards, expressions that are merged with ideas, or other external factors. External factors may include hardware standards, mechanical specifications, software standards, compatibility requirements, computer manufacturer design standards or industry practices.

19. The Court concludes that the Vulcan PLC Code, including the overall structure of ladder logic and the choices made as to the number of rungs, choices of logic arrangement of the PLC program, instructions and tags written

with that ladder logic program, generally, except in instances where there was no discretion exercised on the part of the programmer, are copyrightable subject matter.

20. The Court finds and concludes generally that tags and how they are developed, save and except the spacing indicated by the underscore inserted by the editor program, are largely or completely in the discretion of the programmer and were the creation of the programmer and finds them to be copyrightable material.

21. The selection and arrangement of input and output points in modules and association of data points with tags is copyrightable subject matter.

22. The structure and architecture of rungs within each subroutine, including the creation, selection and arrangement of the rungs with respect to each other and the instructions and tags associated with each rung are copyrightable subject matter. The Court was particularly impressed by the testimony of Mr. Davis regarding the run time counter example, which was used to demonstrate the numerous ways the same function could be accomplished using ladder logic.

23. Source code and object code, including the creation, selection and arrangement of tags, tag descriptions, input points, output points and

instructions used and data points associated with those tags are copyrightable subject matter.

24. Screen displays for user interfaces are protected by copyright law. As noted by both Lunberg and Davis, there are a number of choices that can be made by the programmer regarding the creation of the images such as colors, placement, and design of images. DCS exercised creative discretion in selecting and arrangement of background styles, colors, text fonts, text colors, text sizes, icons and other graphical elements in the Vulcan HMI displays and are copyrightable subject matter.

Dated this 23^d day of February 2010.


UNITED STATES DISTRICT JUDGE