Exhibit - 15

Lawrence Technological University Southfield, Michigan 1979-1983
B.S. Electrical Engineering (Summa Cum Laude)
With an emphasis in Digital and Microprocessor Circuits, and Mathematics and Computer Science

Professional experience:

General Motors Powertrain - Warren West Senior Project Engineer; From July, 1983 to August, 1995
My overall responsibility was the design, engineering, and project management of multi-million dollar renovation projects.

Project Management activity:

Eight years experience in the design, engineering, and project management of advanced powertrain dynamometer multi-million dollar test laboratory renovation.

Four years experience in the design and engineering of advanced powertrain emissions million-dollar test laboratory renovation.

Scheduling project activity using Timeline software to generate timeline diagrams

Reviewed GM UAW hourly personnel work activity (including installing industrial equipment, electrical conduit, and 480 VAC wiring)

Reviewed GM salaried personnel renovation work activity

Reviewed EDS software work activity and helped establish work priorities

Inspected and approved test equipment at contractor facilities

Team leader for continuous improvement process group activity

Summary of qualifications:

Eight years experience in the design and engineering of test cell instrumentation, engine intake conditioned air systems, DSP high speed combustion analysis systems (100 kHz per channel), a hemi-anechoic chamber, fuel injector test stands, operator's control consoles, engine coolant and oil temperature control systems, cell safety systems, cell supply and exhaust ventilation renovation with Toshiba VFD, Allen-Bradley motor control centers, and a fuel injector test stand.

Four years experience in the design and engineering of emissions analysis equipment, sample conditioning equipment, operator's control consoles, test cell sensors and transducers, test site configuration, gas bottle storage room renovation for hazardous environment, overhead track systems, heating and ventilation equipment renovation for energy savings, and strip chart recorders.

Eight years experience in the design, engineering, integration, and project management of HP1000 - A900 series data acquisition test equipment renovation. Including Computer Products front-end equipment, analog and digital I/O cards, interface wiring, signal conditioning, grounding and shielding, and sensors.

Eleven years experience in the hardware and software design, integration, and implementation of Modicon (884, 984-680, and 984-E685) programmable logic controllers. Including the interfacing of the programmable logic controller to test cell equipment, generating the required I/O drawings using Autocad and Gray Soft software, and writing the required software logic using Digital Machine Control software.

Eight years experience in the design, integration, and implementation of electrical controls. Including General Motors ES-1 Electrical Standards, the National Electrical Code, NFPA 79 for Industrial Equipment, explosionproof requirements, intrinsic safety requirements, and test cell power requirements (less than 120 VAC, 120 VAC, and 480 VAC) distribution and grounding system.

Eight years experience in the design, integration, and implementation of Honeywell UDC3000 process controllers for temperature, pressure, and humidity control. Including writing the required configuration software, calibrating systems on start-up, and optimizing software tuning parameters utilizing Protuner auto-tuning software.

Three years experience in the design, integration, and implementation of Modicon Panelmate 2000 series video based man-machine interfaces. Including writing the required configuration and application software.

Twelve years experience in capital appropriations financial activity. Including cost estimates, procuring capital equipment, and tracking project monies for renovation activity.

Twelve years experience in interdepartmental and liaison work activity. Including leading design meetings between technical support personnel, engineers and project managers. Liaison work activity between General Motors and construction contractors and/or test equipment contractors.

Exhibit - 16

1. **Attended Cass Technical High School - 10, 11, and 12 Grades**
   1.1. Electronics Program; Graduated with approximately a 3.7 GPA
   1.2. Purposefully took extra courses in automotive technology
   1.3. Entered physics program at Wayne State University – 11th Grade
      1.3.1. $100 award for being the outstanding student
      1.3.2. Verify with DAPCEP, Detroit Area Pre-college Engineering Program 100 Farnsworth Suite 249 Detroit, Michigan 48202
   1.4. General Motors offers Plaintiff a High School Co-op position – 12th Grade
      1.4.1. General Motors Technical Center, Engineering Building, Dynamometer Wing
2. **Lawrence Technological University Southfield, Michigan – BSEE, 1983**
   2.1. Started a dual degree program at Lawrence Technological University: BSEE and BS in Mathematics and Computer Science
   2.2. Special dual degree courses completed
      2.2.1. Computer Tech 3 Course # 32.273
      2.2.2. Computer Science 1 Course # 32.425
      2.2.3. Matrix Algebra Course # 32.565
      2.2.4. Computer Science 2 Course # 32.513
   2.3. Stanley R. Stasko needs one more year to complete a full second BS degree
      2.3.1. According to the Lawrence Technological University Catalog 1981-82
      2.3.2. Introduction to Western Civilization 1 38.113 (3) Credits
      2.3.3. Introduction to Western Civilization 2 38.213 (3) Credits
      2.3.4. Language and Literature Elective (3) Credits
      2.3.5. Language and Literature Elective (3) Credits
      2.3.6. Language and Literature Elective (3) Credits
      2.3.7. Computer techniques 1 32.233 (3) Credits
      2.3.8. Probability and Statistics 32.485 (5) Credits
      2.3.9. Partial Differential Equations 32.643 (3) Credits
      2.3.10. Numerical Analysis with Computer App 1 32.785 (5) Credits
      2.3.11. Numerical Analysis with Computer App 2 32.795 (5) Credits

3. **Recognition of distinguished scholarship and exemplary character - Tau Beta Pi from Lawrence Technological University; Award certificate dated May 6, 1982**
4. **Awarded membership in the Lambda Iota Tau Honor Society from Lawrence Technological University; Award certificate dated June 5, 1983**
5. **Hired by General Motors Technical Center, Engineering Building, Emissions Wing as a 5th level Associate Engineer (5E35) approximately July 18, 1983**
   5.1. Plaintiff should have been hired as a 6th level Project Engineer; Four to five times General Motors specifically requested plaintiff to work for General Motors
   5.2. First time => plaintiff is asked to interview for a co-op position with General Motors coordinated with Cass Tech High School; General Motors offers plaintiff a co-op position; Plaintiff says no
   5.3. Second time => Cass Tech High School tells plaintiff to see his school counselor; Cass Tech pressures plaintiff to accept General Motors co-op position; plaintiff accepts; see General Motors letter signed by Eileen M. Poppleton – Student Coordinator dated June 9, 1978 (See Exhibit 13); General Motors retaliates by verbally assaulting plaintiff on first day of work
   5.4. Third time => plaintiff does so much good work for General Motors that General Motors asks plaintiff to continue to work into the summer after the school year ends; see General Motors Employment History Record – employment code changed from 2E00 to 2E30 on June 16, 1979 (See Exhibit 14)
   5.5. Fourth time => plaintiff does so much good work for General Motors that General Motors is running out of work for plaintiff to do; General Motors has to think of new work for plaintiff (rewiring Dynamometer Test Cell cylinder distribution solenoids); General Motors offers plaintiff a job with General Motors while he attends Lawrence Technological University; plaintiff says no
      5.5.1. General Motors Summer Temporary Student Appraisal of plaintiff: Overall job rating => Outstanding performance; far exceeds standard for this job; achievable but seldom attained performance; signed by Ron Meegan; dated August 10, 1979 (See Exhibit 14)

5.5.2. General Motors Evaluation on Separation or Transfer of plaintiff; Would you recommend for re-employment? Yes – signed by Paul E. Rishel (See Exhibit 14)

5.6. Fifth time => General Motors tries to hire plaintiff through Ron Buch-holz; Ron is a person plaintiff knows from Lawrence Technological University who in CY1983 works for General Motors; plaintiff does not express any interest to work for General Motors; Ron Buch-holz asks plaintiff for a resume to give to General Motors; plaintiff tells Ron Buch-holz that he is not interested in working for General Motors; eventually plaintiff gives Ron Buch-holz a resume; General Motors interviews plaintiff; General Motors offers plaintiff a job as a 5E35 Associate Engineer

6. **Humidity Monitoring to help diagnose problem with large printer**
   6.1. a gentleman in the General Motors Technical Center, Engineering Building, North Lobby has a printer that can take a picture slide and expand it from approximately 2 inches X 2 inches to greater than 24 inches X 36 inches
   6.2. the problem is that the quality of the expanded printout is unsatisfactory; the suspected problem is that the ambient air humidity conditions are not within printer specifications
   6.3. plaintiff setup an EG&G Dew Point Meter and Ambient Temperature Sensor in the printer area
   6.4. plaintiff trained project personnel on how to record EG&G Dew Point Meter and Ambient Temperature Sensor data
   6.5. plaintiff trained project personnel in reading a Psychometric chart using Dew Point Meter and Ambient Temperature Sensor data
   6.6. plaintiff trained project personnel on how to clean and calibrate the EG&G Dew Point Meter and Ambient Temperature unit
   6.7. with plaintiff assistance the Ambient Air Relative Humidity was determined to be outside printer specifications
7. **Forty-Seven mm diesel particulate filter sampling system**
   7.1. reduction in Diesel Particulate Filter size from approximately 140mm to 47 mm
      7.1.1. smaller filters require less shelf space to soak and normalize to ambient temperature and humidity conditions in the Diesel Particulate Filter Weight Room
      7.1.2. smaller filters are compatible with Sartorius microbalance
      7.1.3. smaller filters require less sample volume removed from CVS tunnel during testing
         7.1.3.1. less sample volume removed equals less mathematical correction
   7.2. 47 mm diesel particulate filters are compatible with tri-pod sampling tree compared to 140 mm mono-pod sample probe
   7.3. this can be verified by contacting Leslie Brown; the Diesel Particulate Filter Weight Room salaried technician

8. **Sartorius Microbalance**
   8.1. used to weigh 47mm diesel particulate filter sampling system
   8.2. measurements to 0.000001 grams
   8.3. automated lifting mechanism allows specimen tray removal without contact by human hands
   8.4. specimen reading initiated via foot operated switch connected to a printer
   8.5. trained diesel Particulate Filter Room technician Leslie Brown in proper operation of Sartorius Microbalance
9. **Tylan Mass Flow Controllers**
   9.1. evaluated and demonstrated that Tylan Mass Flow Controllers as an alternative to traditional Emission Analysis System sample flow control
   9.2. parts reduction associated with using Tylan Mass Flow Controllers instead of traditional Emissions Analysis System sample flow control
      9.2.1. flow controllers, needle valves, flow meters, sintered metal filters
      9.2.2. fittings, 0.25 inch tubing, fitting sealant, and assembly labor
   9.3. front panel space reduction
      9.3.1. no needle valves to mount
      9.3.2. no flow meters to mount
   9.4. to verify plaintiff considered Tylan Mass Flow Controllers for Emission Analysis System applications contact Fred Nadar (sales representative who wanted to use Tylan Mass Flow Controllers if his company was awarded General Motors Technical Center, Engineering Building, Emissions Wing renovation, Emissions Analysis System contract)
   9.5. it was General Motors decision not to use Tylan Mass Flow Controllers; even though, plaintiff demonstrated Tylan Mass Flow Controllers as an alternative to traditional Emission Analysis System sample flow control

10. **Sample Conditioning Unit**

10.1. Design and engineering of a new Sample Conditioning Unit for the Emissions Wing Test Sites

10.2. plaintiff designed the Sample Conditioning Unit for simultaneously conditioning four sample lines

10.3. plaintiff calculated the sizes of the new cooling coils

10.4. plaintiff designed larger cooling coil traps that do not require flushing in the middle of an Emissions Analysis test to remove the accumulated water from the cooling coil traps

10.5. plaintiff designed new stainless steel cooling bath

10.6. plaintiff designs new custom-made Sample Conditioning Unit enclosure

10.6.1. Jerry Sidlar, instrumentation technician assigned to the project, purposefully gives plaintiff bad information by telling plaintiff to design the Sample Conditioning Unit so big that you can remove any component without having to remove another component

10.6.2. General Motors will use the basic design of plaintiff Sample Conditioning Unit in the Emission Wing Renovation except that the revised design will be significantly smaller in size (just the opposite of the information Jerry Sidlar gave to plaintiff)

10.7. plaintiff provided drawings for fabrication of the new stainless steel cooling bath

10.8. plaintiff provided drawings for fabrication of the new custom-made Sample Conditioning Unit enclosure

10.9. plaintiff tells Jerry Sidlar that the new Sample Conditioning Unit will have a programmable logic controller, Paul Durrenberg steals plaintiff idea of using a programmable logic controller by programming it before plaintiff

General Motors Technical Center – Engineering Building - Emissions Wing Renovation

11. Horiba Chassis Dynamometer Controller

11.1. Early in the Emissions Wing Renovation their were discussions with various vendors about the possible sales opportunities within the scope of the Emission Wing Renovation

11.2. Horiba Instruments was the eventual supplier selected for the Chassis Dynamometer Controller

11.3. Terri Hostteter was the General Motors representative for the project

11.4. plaintiff had the opportunity to review some Horiba Chassis Dynamometer Controller information and found an error in the Horiba hardware circuit

11.5. plaintiff reward from General Motors for finding an error in the Horiba Chassis Dynamometer Controller hardware circuit => basically nothing

12. Overhead Track System

12.1. Three independent tracks

12.1.1. Each track could transverse North and South

12.1.2. Each track could transverse East and West

12.1.3. Each track could transverse up and down

12.1.4. Each telescoping tube assembly could rotate

12.2. North most track assigned to video based drivers aid

12.2.1. useful for left handed vehicles (USA) and right handed vehicles (Europe)

12.2.2. elimination of two-pen recorder taking up valuable Emission Test Site floor space

12.3. Middle track assigned to Emission Test Site Instrumentation Console

12.3.1. useful for positioning temperature, pressure, and RPM sensors near engine compartment for front-wheel drive vehicles or rear-wheel drive vehicles

12.3.2. short pressure transducer lines minimize pressure line dips / valleys

12.4. South most track assigned to Engine Cooling Fan

12.4.1. useful for positioning Engine Cooling Fan near vehicle radiator of front-wheel drive vehicles or rear-wheel drive vehicles

12.4.2. elimination of Engine Cooling fan taking up valuable Emission Test Site floor space

12.4.3. Emission Test Site temperature sensor and humidity sensor pickup mounted on South most telescoping tube assembly to ensure representative temperature and humidity reading for Emission Test Site Computer

12.5. Installed by UAW personnel

12.5.1. with McKinney supplying a working supervisor

12.6. plaintiff gains experience working with UAW personnel

12.7. plaintiff gains experience working with outside contractors

12.8. another successful project by plaintiff

12.9. Overhead Track System project can be verified by contacting David McKinney, McKinney & Company, P.O. Box 1702, 221 Felch, Ann Arbor, Michigan 48106

13. **Emission Wing Renovation – Design Coordination**

13.1. Gathered information for Smith H&G for HVAC design report

13.1.1. For example – Emission analysis equipment 120 VAC power consumption

13.2. New Emission Wing Test Site changes include

13.2.1. Test Site #1, Test Site #2, Test Site #3, and Test Site #4 extended North approximately five feet

13.2.2. On-line Emissions analyzers calibration gas storage room relocated to second floor

13.2.3. New Emission analyzers calibration gas analysis room constructed in Southeast corner of Emissions Wing next to Vehicle Fuel Transfer Room

13.2.4. Diesel Particulate Filter Weight Room relocated from basement to 1st floor of the Emissions Wing

13.3. plaintiff specifies Richmond Instruments to provide plexi-glass footprint of new Emissions Analysis Benches to aid in the physical layout of the new Emissions Analysis Benches on new eight inch raised flooring:

13.3.1. interfacing with renovated monoxide ventilation piping

13.3.2. routing of new under-raised flooring HVAC ventilation ducting

13.3.3. locating new under-raised flooring Smoke and Fire detectors

13.3.4. interfacing of 120 VAC electrical power

13.4. plaintiff specified location of some of the new equipment located in the New Host Computer Room

13.4.1. new stand-alone HVAC unit

13.4.2. new stand-alone Power Conditioning Unit

13.4.3. new Honeywell DDC Supervisor Personal Computer

13.5. coordinated mounting of MVEL supplied Video Based Drivers Aid to North most track of Overhead Drivers Aid system

13.6. coordinated mounting of General Motors purchased Engine Cooling Fan to South most track of Overhead Drivers Aid system

13.7. plaintiff found mistake in Horiba Dynamometer Controller circuit

14. **Emissions Wing Renovation – Project Management**

14.1. Recorded day-to-day construction contractor head count and work activity

14.2. Circulated and approved construction contractor equipment submittals

14.3. plaintiff project managed the construction contractor portion of the Emission Wing Renovation independent of Ward Wiers or Denise Wiese

14.3.1. plaintiff did not revive or ask approval from Ward Wiers or Denise Wiese on a daily basis

14.3.2. plaintiff did not revive or ask approval from Ward Wiers or Denise Wiese on a weekly basis

14.3.3. plaintiff did not revive or ask approval from Ward Wiers or Denise Wiese on a monthly basis

14.3.4. Ward Wiers and Denise Wiese could have been in a hospital and plaintiff would not have noticed their absence during day-to-day Project Management of contractor work associated with the Emissions Wing Renovation

14.4. plaintiff approved outside contractor monthly request for payments

14.4.1. plaintiff did not ask for Denise Wiese or Ward Wiers approval

14.5. Reviewed and approved outside contractor work order bulletins, field orders, and time and material work activity

14.5.1. plaintiff did not ask for Denise Wiese or Ward Wiers approval

14.6. When Utley-James was having financial difficulty paying its subcontractors it was plaintiff that was General Motors representative in piecing together the financial status of the Emission Wing Renovation project

14.6.1. plaintiff did not ask for Denise Wiese, Ward Wiers, or Chuck Satchell approval

14.7. When General Motors negotiated paying Utley-James subcontractors plaintiff was 1 of 2 General Motors representatives (John Stanek the other GM representative) in bring to a conclusion the financial status of the Emission Wing Renovation project

14.7.1. plaintiff did not ask for Denise Wiese, Ward Wiers, or Chuck Satchell approval

14.8. plaintiff directed UAW personnel in modifying and starting-up the Overhead Door Logic Controls

14.9. Documentation of Emissions Wing Renovation project including tagging major electrical equipment supplied by outside construction contractor (transformers, motor control centers, disconnects)

14.9.1. including tagging 120VAC electrical outlets

14.9.2. including documenting the rewrite of the Modicon 884 PLC program

15. **Instrumentation Console and Custom Enclosure**

15.1. designed and fabricated in-house; not purchased from a supplier

15.2. approximately eight thermocouple channels

15.2.1. with Acromag signal conditioning modules

15.2.2. up to sixteen modular signal conditioning modules in a 19inch rack mount housing

15.3. approximately six Viatran pressure transducers

15.3.1. differential pressure measurement

15.3.1.1. positive pressure measurement

15.3.1.2. negative pressure measurement

15.3.1.3. differential pressure measurement

15.3.2. mounted on a sliding shelf for easier servicing

15.3.2.1. pressure transducer calibration switches mounted on sliding shelf for close proximity to pressure transducers

15.4. Engine RPM pickup and measurement

15.5. all internal interface wiring documentation

15.6. all external interface wiring documentation from Instrumentation Console to Emission Test Site Patch Panel

15.7. mounted on middle track of the Overhead Track System

15.7.1. useful for positioning temperature, pressure, and rpm sensors near engine compartment for front-wheel drive vehicles or rear-wheel drive vehicles

15.7.2. short pressure transducer lines minimize pressure line dips / valleys

15.8. plaintiff procured custom enclosure

15.9. Phil Brock modified custom enclosure to mount onto the Overhead Track System

16. **Emission Test Site Instrumentation Patch Panel**

16.1. designed in-house by plaintiff

16.2. wire interfacing by plaintiff

16.3. documentation by plaintiff

16.4. Project management by plaintiff

16.5. Fabricated by Richmond Instruments

16.6. Signal input from array of sources

16.6.1. Engine Out Emission Analyzers

16.6.2. Tailpipe Emission Analyzers

16.6.3. Bag Emission Analyzers

16.6.4. Instrumentation Console temperature signals

16.6.5. Instrumentation Console pressure signals

16.6.6. Instrumentation Console RPM signal

16.7. Signal outputs

16.7.1. Signal output #1 --- to Site Computer Aux01 signal input

16.7.2. --- to (12) Channel Recorder channel 01

16.7.3. Signal output #2 through #12 similar to Signal output #1

16.7.4. Signal output #13 --- to Site Computer Aux13 signal input

16.7.5. Signal output #14 through #18 similar to Signal output #13

16.8. Recessed slots to hold stereo-jack connectors in a tidy storage

17. **12-Channel Strip Chart Recorder and Custom Enclosure**

17.1. plaintiff directed technician Ken Welbaum in collecting measurement data from a cross section of vehicles

17.2. plaintiff specified height of strip chart recorder pen above finished floor based on sample data collected

17.3. plaintiff surveyed several technicians to obtain proper viewing angle of 12-channel strip chart recorder pens from Emission Test Site vehicle

17.4. included with pull-out drawer to catch z-fold strip chart recorder paper while in use

17.5. plaintiff provided Richmond Instruments with preliminary drawings for fabrication of 12-channel strip chart recorder cart important dimensions

17.6. fabricated by Richmond Instruments

17.7. plaintiff designed instrumentation interfacing

18. **Dew Point Meter and Ambient Temperature Sensor and Custom Enclosure**

18.1. plaintiff selected EG&G Dew Point Meter and Ambient Temperature Sensor

18.1.1. plaintiff expanded supplier base because General Eastern Dew Point Meter was the standard for General Motors MVEL

18.2. plaintiff worked with supplier to implement plaintiff specified modifications; (this can be verified by talking with Jim Parker the EG&G sales representative at the time)

18.3. Dew Point sample point and Ambient Temperature sensor remote mounted on Overhead Track System to measure Engine Intake Air conditions

18.4. plaintiff used Acromag signal conditioning modules to isolate signals to HVAC controls and Test Site Computer

18.5. plaintiff designed interface wiring

18.6. Richmond Instruments fabricated the custom enclosure

18.7. Project management by plaintiff

18.8. one unit in Test Site #1; one unit in Test Site #2; one unit in Test Site #3

18.9. one unit in Test Site #4; one unit in Test Site #5; two units in Soak Area

18.10. one unit in Diesel Particulate Filter Weight Room

19. **Instrumentation Interfacing**

19.1. General Motors Milford Proving Grounds (MVEL) provided the Emissions Test Site Computer

19.1.1. MVEL interfaced the Emissions Test Site Computer to the Emissions Analysis Systems

19.1.2. MVEL documented the interfacing from the Emissions Test Site Computer to the Emissions Analysis Systems

19.2. plaintiff designed the interfacing for the interior of the Instrumentation Patch Panel

19.3. plaintiff documented the interfacing for the interior of the Instrumentation Patch panel

19.4. plaintiff designed the interfacing from the Instrumentation Patch Panel to the Emissions Test Site Computer

19.5. plaintiff documented the interfacing from the Instrumentation Patch panel to the Emissions Test Site Computer

19.6. plaintiff designed the interfacing from the Instrumentation Patch Panel to the 12-Channel Strip Chart Recorder

19.7. plaintiff documented the interfacing from the Instrumentation Patch panel to the 12-Channel Strip Chart Recorder

19.8. plaintiff designed the interior interfacing of the 12-Channel Strip Chart Recorder

19.9. plaintiff documented the interior interfacing of the 12-Channel Strip Chart Recorder

19.10. plaintiff designed the interfacing from the Instrumentation Console to the Instrumentation Patch Panel

19.11. plaintiff documented the interfacing from the Instrumentation Console to the Instrumentation Patch Panel

19.12. plaintiff designed the interfacing for the interior of the Instrumentation Console

19.13. plaintiff documented the interfacing for the interior of the Instrumentation Console

19.14. plaintiff designed the interfacing from the Dew Point Meter and Ambient Temperature Sensor Enclosure to the Instrumentation Patch Panel

19.15. plaintiff documented the interfacing from the Dew Point Meter and Ambient Temperature Sensor Enclosure to the Instrumentation Patch Panel

19.16. plaintiff designed the interfacing for the interior of the Dew Point Meter and Ambient Temperature Sensor Enclosure

19.17. plaintiff documented the interfacing for the interior of the Dew Point Meter and Ambient Temperature Sensor Enclosure

20. **Programmable Logic Controllers – integrated into Emissions Analysis Systems**

20.1. Don Nagy of General Motors Milford Proving Grounds specifically stated that Programmable Logic Controllers have been tried by General Motors before and cannot be made to work for Emissions Analysis Systems application; Don Nagy recommended using Milford Vehicle Emissions Lab Bench Controller

20.2. When General Motors was starting up the first Programmable Logic Controller and a minor problem appeared between the Emissions Test Site Computer and the Programmable Logic Controller; you should have seen Jo-han-na You-house (Don Nagy's representative from General Motors Milford Proving Grounds responsible for the Emissions Test Site Computer) **run** to the telephone and start complaining that it does not work

20.3. plaintiff rewrote practically all of the Modicon 884 PLC software provided by Richmond Instruments

20.3.1. Richmond Instruments software exhausted PLC memory

20.3.2. Richmond Instruments software incomplete and non-functioning

20.4. plaintiff version of Modicon 884 PLC software uses unique programming logic

20.5. plaintiff proved Don Nagy and General Motors wrong by proving Programmable Logic Controllers can be used in Emission Analysis System applications

20.6. plaintiff implementation of Modicon 884 Programmable Logic Controllers is another example of plaintiff expanding General Motors vendor base because General Motors strongly uses Allen Bradley Programmable Logic Controllers

21. **Large Temperature and Humidity Display**

21.1. the purpose of the Large Temperature and Humidity Display (approximately 30 inches wide by 42 inches tall) was to make the display large enough whereby a group of General Motors managers touring the Emissions Wing could easily view Emissions Test Site temperature and humidity conditions in real time

21.2. located near the entrance to the Emission Wing

21.3. grouped in logical order

21.3.1. Test Site #1 – Temperature and Humidity

21.3.2. Test Site #2 – Temperature and Humidity

21.3.3. Test Site #3 – Temperature and Humidity

21.3.4. Test Site #4 – Temperature and Humidity

21.3.5. Test Site #5 – Temperature and Humidity

21.3.6. Soak Area #1 – Temperature and Humidity

21.3.7. Soak Area #2 – Temperature and Humidity

22. Honeywell HVAC Central Control Station

22.1. plaintiff directed Honeywell in the software configuration of the HVAC Central Control Station configuration

22.2. ten display pages laid out by Stanley R. Stasko

22.3. plaintiff specified the parameters to be displayed in logical groups

22.3.1. Emissions Test Site #1 parameters

22.3.2. Emissions Test Site #2 parameters

22.3.3. Emissions Test Site #3 parameters

22.3.4. Emissions Test Site #4 parameters

22.3.5. Emissions Test Site #5 parameters

22.3.6. Soak Area parameters

22.3.7. Temperature and Humidity parameters

22.3.8. Test Site status parameters

22.4. Honeywell DDC personal computer physically located in Emissions Wing Host Computer Room

23. **Smoke Detector Graphics Display Panel**

23.1. the Emission Wing Renovation included installing raised flooring in areas previously with bare concrete floors

23.2. the Emission Wing Renovation included installing suspended ceilings in areas previously open ceilings

23.3. smoke detectors were installed above the suspended ceilings, on the exposed side of the suspended ceilings, and below the raised flooring

23.4. a Smoke Detector Graphics Display Panel was installed next to the Large Temperature and Humidity Display Panel to give General Motors Security a quick reference to the location of a alarm and / or fault of a smoke detector

24. Overhead Door Logic Controls

24.1. part of the Emissions Wing renovation was the installation of a vehicle air lock to environmentally isolate the Emissions Wing from the rest of the Engineering Building

24.2. an automobile trying to enter the Emissions Wing would approach the air lock; the first door would open; the vehicle would enter the air lock; the first door would close; the second door would open, then the vehicle would drive out of the vehicle air lock

24.3. the vehicle air lock was supplied by Utley-James (the outside contractor) and used conventional discrete logic (no Programmable Logic Controller) for controlling the sequence of the vehicle air lock operation

24.4. the overhead door logic controls does not work

24.5. the enclosure is so small there is practically no room to add any relays if necessary

24.6. plaintiff reviews the engineering prints and directs two UAW personal to rewire the Overhead Door logic controls according to plaintiff redesign; (this can be verified by talking to Jim and Frank the two UAW electricians)

24.7. the Overhead Door logic controls redesign is successful

24.8. plaintiff writes an Operations Memo

24.9. Operations memo distributed to appropriate personal

25. **Software Programming Skills and Software Program Management**

25.1. Wrote **Basic Language** software program for 47 MM Diesel particulate Filter Sampling System

25.2. Fortran language software programming at Lawrence Technological University Southfield, Michigan

25.3. Additional software programming at Lawrence Technological University Southfield, Michigan as part of a Special dual degree program in Mathematics and Computer Science

25.3.1. Computer Tech 3 Course # 32.273

25.3.2. Computer Science 1 Course # 32.425

25.3.3. Computer Science 2 Course # 32.513

25.4. Microprocessor assembly language software programming at Lawrence Technological University Southfield, Michigan as part of BSEE degree program

25.5. Modicon 884 Programmable Logic Controller software programming for Emission Wing Emissions Analysis equipment

25.6. Modicon 984 Programmable Logic Controller software programming for Dynamometer Wing programmable logic controller enclosure application

25.7. showed EDS software personnel how Digital Machine Design techniques could be used to structure the software program for Dynamometer Wing Controlled Schedule Testing software

25.8. explained software requirements for Dynamometer Test Cell End-to-End Instrumentation calibration to EDS

25.9. Wrote Lotus 1-2-3 spreadsheet program to estimate the software headcount requirements

25.9.1. Variables included: estimated software hours, vacation time, normal day-to-day software maintenance overhead, and new software employee effectiveness

General Motors Technical Center – Engineering Building - Dynamometer Wing Renovation

26. Fuel Meter Calibration Cart

26.1. Old fuel meter calibration cart poured raw gasoline into an open container

26.1.1. Gasoline could spill unto floor

26.2. Old fuel meter calibration cart did not meet Class 1, Division 1, Group C / D requirements

26.3. New fuel meter calibration cart

26.4. All gasoline fuel enclosed in stainless steel or compatible material

26.5. Safety improved with Class 1, Division 1, Group D requirements; positive pressurization; or intrinsic safety

26.6. Employed new technology; EXAC coriollis meter

26.7. plaintiff worked with pulse counter supplier to modify pulse counter to plaintiff custom specifications

26.8. plaintiff designed and engineered fuel meter calibration cart

26.9. plaintiff selected major components for fuel meter calibration cart

26.10. plaintiff procured major components for fuel meter calibration cart

26.11. plaintiff specified interface wiring for fuel meter calibration cart

26.12. plaintiff wrote software program to semi-automate calibration report for the fuel meter calibration cart

26.13. plaintiff project managed the fabrication of the fuel meter calibration cart

26.14. this can be verified by contacting Karl Klida the General Motors Salaried technician assigned to fabricating the Fuel Meter Calibration Cart

27. Fuel Injector Test Stand Renovation

27.1. Surveyed project personnel to determine fuel pressure and flow requirements

27.2. Surveyed project personnel to determine problems with existing Fuel Injector Test Stand procured by General Motors that remained unresolved until plaintiff arrived in Dynamometer Wing

27.3. Design and engineering to make all wetted materials compatible with gasoline, methanol, and ethanol fuels

27.4. Design and engineering to make appropriate electrical equipment compatible with Class 1, Division 1, Group D requirements

27.5. Design and engineering to positive purge electrical enclosures to reduce rating from Class 1, Division 1, Group D to non-hazardous

27.6. Unique application of intrinsic safety barrier to make computer keyboard intrinsically safe in a Class 1, Division 1, Group D environment

27.7. Design and engineering of modification of electrical controls

27.7.1. Application specific start-up procedure to ensure Fuel Injector Test Stand cannot be casually started by unauthorized personnel drifting into the remote Fuel Blend House

27.8. Specified, ordered, and procured major components

27.9. Coordinated the transfer of the Fuel Injector Test Stand from Test Cell #12 (old carburetor flow room) to Fuel Blend House

27.10. Project management and project coordination of work activity between outside suppliers, General Motors salaried personnel, and UAW personnel

27.11. Assisted in equipment startup

27.12. Wrote start-up procedure for Fuel Injector Test Stand remote HP computer

27.13. to verify the scope of the changes to the Fuel Injector Test Stand renovation contact Lou Wine-nand (General Motors Engineer) and Dick Powel (General Motors Salaried Technician); also Steve Fry (a General Motors Salaried Technician from another General Motors Test Laboratory) who was familiar with using the renovated Fuel Injector Test Stand at the General Motors Technical Center, Dynamometer Wing

28. Elimination of Dynamometer Shimming

28.1. plaintiff eliminated Dynamometer shimming

28.2. this was a procedure that General Motors Dynamometer Maintenance personal could not explain its (have to pick the right word)

28.3. when plaintiff eliminated Dynamometer shimming, Doug Neumann was retired

29. Engine Coolant and Engine Oil Process Control

29.1. Significant equipment mounting space requirement reduction

29.1.1. Space savings allowed for a larger PLC enclosure to be mounted on the basement test cell wall

29.1.2. Space savings aided in bring about a more consistent equipment layout as each Dynamometer Test Cell was renovated

29.2. Design and engineering of new engine coolant and engine oil heat exchangers; (plaintiff procured the initial heat exchangers from Kundinger Fluid Power, Madison Heights, Michigan)

29.2.1. Old engine coolant process cooling heat exchangers were oversized for modern smaller displacement engines

29.3. Design and engineering of new process control valves; (this can be verified by talking to SW Controls, 45345 Five Mile Road, Plymouth, Michigan 48170 - one of the two finalist selected for bidding the control valve order)

29.3.1. Engine coolant process cooling

29.3.1.1. old engine coolant process cooling control valve was improperly sized and did not work unless process heating steam was injected to generate an artifical load

29.3.2. Engine coolant process heating

29.3.3. Engine oil process cooling

29.3.4. Engine oil process heating

29.4. Replaced a mis-mash of solenoids, pipe sizes, control valves, and equipment layout configuration with a consistent design

29.5. plaintiff calculated new copper pipe sizes

29.6. plaintiff calculated new solenoid specifications

29.7. plaintiff specified new water shock absorbers

29.8. Design and incorporation of new Honeywell UDC3000 process controllers

29.8.1. plaintiff specified product

29.8.2. plaintiff designed equipment interfacing

29.8.3. plaintiff designed hardware configuration

29.8.4. plaintiff specified software configuration

29.8.5. plaintiff performed detailed input / output calibration

29.8.6. plaintiff determined PID tuning parameters

29.9. plaintiff procured Techmation Protuner 2000 and introduce new technology in the tuning of PID process controller

29.9.1. no more trial-and-error, or guessing

29.9.2. could be used with Honeywell UDC3000 process controllers or any of a large array of PID process controllers

29.9.3. to verify that plaintiff Techmation Protuner 2000 contact Techmation 8070 E. Morgan Trail, Suite 150, Scottsdale, Arizona 85258-1228

29.10. New engine coolant process cooling and heating support stand located in Dynamometer test cell

29.10.1. Engine coolant process cooling heat exchanger

29.10.2. Engine coolant process heating heat exchanger

29.10.3. Expansion tank (new expansion tank size calculated by plaintiff)

29.10.4. Pressure relief valve

29.10.5. Coolant fill port

29.10.6. Coolant level sight glass

29.10.7. Coolant presence safety probe

29.10.8. Overflow tube

29.10.9. By relocating the engine coolant process cooling heat exchanger and engine coolant process heating heat exchanger to the support stand located in the

Dynamometer test cell the amount of antifreeze required to fill the engine coolant system was reduced from approximately 20 gallons to 5 gallons

29.11. Specified, ordered, and procured major components including heat exchangers, control valves, solenoid, water shock absorbers, and Honeywell UDC300 process controllers

29.12. Coordinated the design of the new engine coolant process cooling and engine coolant process heating heat exchanger support stand

29.13. Project management and project coordination of work activity between outside suppliers, General Motors salaried personnel, and UAW personnel; (this can be verified by contacting Dave Van-poel-e-vor-de) the General Motors Salaried technician assigned to various Engine Coolant and Engine Oil Process Control projects)

29.14. plaintiff provided detailed equipment startup

29.15. Wrote and maintained detailed Honeywell UDC3000 input / output configuration tables and PID tuning parameters

30. DSP Combustion Analysis System

30.1. Original report on combustion analysis made by General Motors Research

30.2. General Motors Corporation then worked with DSP Technology to sell Combustion Analysis Systems to General Motors Corporation

30.3. plaintiff task was to procure two integrated Combustion Analysis Systems from DSP Technology

30.4. Since plaintiff was a designer / engineer / project manager plaintiff decided to allow two Test Cell Operators (people who would actually use the equipment) to travel to DSP Technology in California, USA

30.5. The two Test Cell Operators selected were Eric Dobis and Denise Montville

30.5.1. Eric Dobis went on the first trip; the timeframe can be easily pinpointed since Eric Dobis visited DSP Technology during the famous California earthquake that caused a major bridge to collapse

30.5.2. Denise Montville went on the second trip; the timeframe can be narrowed down since Denise Montville called plaintiff because he was having problems charging items with his credit card

30.6. plaintiff reward for successfully procuring two integrated Combustion Analysis Systems => Basically nothing

31. **DSP Combustion Analysis System – Several years later**

31.1. Several years later General Motors Corporation and DSP Technology had a problem with the DSP Combustion Analysis Systems that General Motors Corporation could not solve nor could DSP Technology solve

31.1.1. This can be verified by talking to General Motors engineer Tony Sperling or with DSP Technology (try DSP Technology sales representative Tim Sante)

31.2. General Motors Corporation got so desperate that they accused DSP Technology of having a software virus in their equipment

31.3. General Motors Corporation asked plaintiff to try to solve the problem

31.4. The basic problem – DSP Technology Combustion Analysis System RPM signal unstable

31.5. Example: 2400 RPM + / - a lot of fluctuation

31.6. plaintiff within minutes breaks solves the problem

31.7. RPM signal from one pulse per revolution signal

31.8. 2400 RPM equals 40 pulses per second

31.9. Display updates approximately one update per second

31.10. Therefore RPM signal accuracy at 2400 RPM equals 40 pulses + / - 1 pulse equals 2.5 percent accuracy

31.11. 2400 RPM * 2.5 percent equals 60 RPM

31.12. 2400 RPM + / - 60 RPM; Problem solved!

31.13. Remember nobody in General Motors Corporation nor in DSP Technology could figure out the problem

31.14. plaintiff reward for solving this problem – basically nothing

32. Druck Pressure Transducers

32.1. plaintiff was willing to break away from many years of using Viatran pressure transducers in Emission Wing Emissions Testing and Dynamometer Wing Dynamometer Testing and switch to Druck pressure transducers

32.2. plaintiff developed custom pressure transducer specifications for Dynamometer Testing

32.2.1. old Viatran pressure transducers

32.2.1.1. 0.40 percent full scale accuracy

32.2.1.2. problems with temperature drift

32.2.1.3. problems with long term stability

32.3. new Druck pressure transducers

32.3.1. 0.15 percent full scale accuracy

32.3.2. tighter temperature drift specifications

32.3.3. greater long term stability; greater than 6 months without recalibration required

32.4. relocating the Druck Pressure Transducers to the new Instrumentation Booms allowed for the elimination of the Dynamometer Test Cell secondary console

32.4.1. also eliminated the accumulation of fluid from the pressure transducer sample lines

32.4.2. also eliminated long pressure transducer sample lines

32.5. by selecting Druck Pressure Transducers plaintiff expanded General Motors supplier base; plaintiff expanded his experience with working with multiple vendors

32.6. plaintiff supported using Druck pressure transducers, Paul Durrenberg supported using Viatran pressure transducers

32.7. plaintiff evaluated Druck and Viatran pressure transducers (that meet plaintiff custom pressure transducer specifications) and showed that Druck pressure transducers performed better than the Viatran pressure transducers

32.8. Druck pressure transducers first installed in Dynamometer Test Cell #13 renovation

32.8.1. some pressure transducers operated over one year without re-calibration and still operated within Dynamometer Wing Test Cell operating specifications (within +/- one percent)

32.9. because the Druck pressure transducers were mounted in overhead operators boom this helped in eliminating of Dynamometer Test Cell Operators Console (located inside Test Cell)

32.10. Tim Sante, a sales representative for a supplier, specifically asked plaintiff about his application of pressure transducers in Dynamometer Testing

32.11. One Druck pressure transducer mysteriously damaged; would be interesting to see if it was sabotaged (plaintiff caught PED committing sabotaged)

33. New Programmable Logic Controller (PLC) and PLC Enclosure

33.1. Old Mechanical Box removed

33.2. Old wiring removed

33.3. Old conduit, old wire-way, and old oversized junction boxes removed

33.4. plaintiff ended the old practice of trying to reuse the existing conduit and wiring (General Motors did not support the scrapping of the existing conduit, the existing wire-way, and the existing oversized junction boxes until General Motors seen how good the Dynamometer Test Cell looked with the new electrical conduit)

33.5. plaintiff proved he could design and engineer an entire Programmable Logic Controller for a Dynamometer Test Cell

33.6. plaintiff redesign of the Engine Coolant Temperature and Engine Oil Temperature Process Control System opened up the needed wall space for the larger Programmable Logic Controller Enclosure

33.7. The new Programmable Logic Controller enclosure, the new electrical conduit, the carefully layout of the new equipment, and the fresh painting of the work area transformed the Dynamometer Test Cell basement work area into a modern looking Dynamometer Test Lab

33.7.1. plaintiff forced General Motors to take a clean sheet approach

33.7.1.1. the reader can not appreciate how much harassment plaintiff received from General Motors for not reusing the existing conduit, the existing wire-way, and the existing oversized junction boxes

33.7.2. Prior to plaintiff transferring into the Dynamometer Wing from the Emissions Wing, an ISSC Programmable Logic Controller was implemented in an existing Mechanical Box (the surrounding Dynamometer Test Cell basement work area still looked outdated)

33.7.3. A picture speaks a thousand words to the aesthetic improvement made by plaintiff with the new Programmable Logic Controller Enclosure, the new electrical conduit, the carefully layout of the new equipment, and the fresh painting of the work area in transforming the Dynamometer Test Cell basement

33.8. plaintiff designed and engineered the interfacing of the Programmable Logic Controller enclosure to:

33.8.1. a manual push button interface panel in Dynamometer Test Cell #11

33.8.2. a Video Based Man-Machine Interface in later Dynamometer Test Cell renovations

33.8.3. a new Dynamometer Hard Stop safety circuit

33.8.4. a new Temperature and RPM safety meters

33.8.5. a new General Electric Solid State Dynamometer Controller in Dynamometer Test Cell #11

33.8.6. old style General Electric Motor- Generator Dynamometer Controller in other Dynamometer Test Cells (to verify that plaintiff knew how to interface to an old style General Electric Motor-Generator Dynamometer Controller contact Michael Delduca at U.S. Environmental Protection Agency 2565 Plymouth Road, Ann Arbor, Michigan 48105)

33.8.6.1. when plaintiff work for DSP Technology, he was assigned to renovate one test cell EPA which required the interfacing to an old style General Electric Motor – Generator Dynamometer Conttoller

33.8.7. a new Meiden AC Dynamometer Controller in other non- General Electric Motor – Generator Dynamometer Controller Test Cells

33.9. plaintiff utilized Graysoft Software in conjunction with Autocad Computer Aided Design Software to generate the required PLC Enclosure fabrication prints

33.9.1. in other words plaintiff generated all Graysoft Software PLC Enclosure fabrication prints

33.10. plaintiff did the equivalent work of multiple full time General Motor employees

33.10.1. one of the roles plaintiff performed was the equivalent work of a full time CAD designer

33.10.2. plaintiff did the equivalent work of a full time secretary making the necessary blue prints, keeping prints stored and organized, and distributing prints to the appropriate Dynamometer Test Lab technicians

33.11. plaintiff designed and engineered the software programming of the Programmable Logic Controller including:

33.11.1. the manual push button interface panel in Dynamometer Test Cell #13

33.11.2. converting the Programmable Logic Controller software programming for use with Video Based Man-Machine Interface in later Dynamometer Test Cell renovations

33.11.3. ensuring the Dynamometer Hard Stop safety circuit was Safe prior to allowing the Dynamometer Test Cell could begin the start-up sequence

33.11.4. the Dynamometer Test Cell start-up sequence ensured that

33.11.4.1. the Dynamometer Motor-Generator was enabled prior to the Dynamometer being turned on

33.11.4.2. the Dynamometer Test Cell Ventilation was enabled prior to the Dynamometer being turned on

33.11.4.3. without getting into all the start-up sequence details it is sufficient to note that the PLC software anticipated a specific Dynamometer Test Cell start-up sequence

33.12. Specified, ordered, and procured major components

33.12.1. Including PLC processor, PLC housings, and PLC modules

33.13. Project management and project coordination of work activity between General Motors Dynamometer Wing salaried personnel, General Motors Emission Wing salaried personnel, software personnel and UAW personnel

33.14. Provided detailed startup assistance

34. New CPI Front-end Equipment

34.1. Eliminated over one dozen relays by eliminating relay switching for Thermocouple signals

34.2. Eliminated thermocouple cold junction heater ovens; thereby, saving electricity and space

34.3. Elimination of using an non-standard thermocouple cold junction reference temperature

34.4. Reduction from Type-J and Type-K thermocouples to Type-K only; thereby, reducing operator error, and reducing material procurement / storage requirements

34.5. Reduction of two thermocouple software calibration curves to one thermocouple calibration curve

34.6. Eliminated confusing North / South thermocouple switching

34.6.1. When North end is selected: North T/C = 1 to 10

34.6.2. South T/C = 11 to 20

34.6.3. When South end is selected: North T/C = 11 to 20

34.6.4. South T/C = 1 to 10

34.7. Pressure transducers relocated in overhead operators

34.7.1. helped in eliminating of Dynamometer Test Cell Operators Console

34.7.2. elimination of fluid accumulation in pressure transducer sample lines

34.7.3. elimination of long pressure transducer sample lines

34.8. Eliminated Dynamometer Test Cell Operator Console

34.8.1. Freed up space for new Sample Conditioning Unit

34.9. converted existing low usage closet into an important signal interface closet for new 19 inch rack mountable terminal strips; thereby, eliminating calibration technicians working on hands and knees

34.10. Specified and coordinated UAW work activity for seven inch diameter hole core through solid wall

34.11. Design and engineering of instrumentation interfacing which included

34.11.1. HP computer / CATS software configuration information

34.11.2. Instrumentation terminal strip interfacing

34.11.3. Instrumentation interface cable specification, wire color, cable numbering

34.11.4. Interfacing to signal conditioning modules as needed

34.11.5. Interfacing to thermocouples, pressure transducers, analog input connectors, and Emissions analysis equipment

34.11.6. interfacing to Emissions Analyzers for range sense and range selection control (plaintiff interfaced to Emissions Analyzers range sense and range selection control when plaintiff worked for DSP Technology and was assigned to renovate one test cell renovation for Chrysler – Livonia; contact Thomas Lawrence or David Bjarnesen at Chrysler Corporation 37200 Amrhein, Livonia, Michigan 48150-1108)

34.12. Documentation of over 50 pages of instrumentation interfacing

34.13. Design and engineering of instrumentation power distribution

34.13.1. Power supply interfacing

34.13.2. Power distribution fuse protection; you could dead short an analog input +24 VDC, +12 VDC, or +5 VDC voltage source at the test cell operators boom and a fuse protected the wiring and power supplies from damage

34.13.3. Visual blown fuse indicators for easy diagnostics

34.14. Design and engineering of instrumentation grounding and shielding

34.15. Specified, ordered, and procured major components; (verify by contacting Ted Ma-ko-viak the sales representative of the CPI front-end equipment)

34.15.1. Including CPI front-end equipment, CPI terminal barriers, signal conditioning modules, pressure transducers, interface wiring, and electrical connectors

34.16. Project management and project coordination of work activity between General Motors Dynamometer Wing salaried personnel, General Motors Emission Wing salaried personnel, software personnel and UAW personnel

34.17. Provided detailed startup assisted; (this can be verified by contacting Karl Klida; a General Motors Salaried technician who worked on various CPI Front-end Equipment projects)

35. **AutoCAD Drawings**

35.1. Farris Murray generated the two-dimensional and three-dimensional drawings for the fabrication of the Instrumentation Booms from sheet metal

35.2. plaintiff completed "Beginning AutoCAD" at General Motors Institute Engineering & Management Institute; Certificate dated May 18, 1989

35.3. When plaintiff completed AutoCAD training, plaintiff designed the 2-dimentional drawings for the electrical connectors interface panels (plural); Interfacing the engine-under-test to the various Dynamometer Test Cell Measurement and Control Systems including:

35.3.1. Type-K thermocouple interface

35.3.2. Engine Coolant and Engine Oil temperature control interface

35.3.3. Auxiliary analog input interface

35.3.4. Auxiliary pulse signal input interface

35.3.5. Engine Over-speed interface

35.3.6. Engine Coolant circulation rate and Engine Oil circulation rate

35.4. plaintiff designed all the two-dimensional AutoCAD drawings for fabrication of the electrical connectors interface panels by machine shop personnel

35.5. plaintiff designed all the two-dimensional AutoCAD graphics drawings for the Art Work for the electrical connector interface panels text

35.6. Once plaintiff completed "Beginning AutoCAD" at General Motors Institute Engineering & Management Institute, a transition from Farris Murray to plaintiff generating all the two-dimensional AutoCAD graphics drawings associated with the new CPI front-end equipment in a Dynamometer Test Cell renovation

35.7. Once plaintiff completed "Beginning AutoCAD" at General Motors Institute Engineering & Management Institute, a transition from Farris Murray to plaintiff generating all the two-dimensional AutoCAD graphics drawings associated with the new Programmable Logic Controller and PLC Enclosure in a Dynamometer Test Cell renovation

35.7.1. Including interfacing to:

35.7.2. Dynamometer Hard Stop safety circuit

35.7.3. Auxiliary temperature safety meters

35.7.4. Engine and Dynamometer RPM safety meters

35.7.5. Manual push button Test Cell interface panel

35.7.6. Dynamometer Controller

35.7.7. Engine Coolant and Engine Oil Temperature Control System

35.7.8. Supply and Exhaust Fan controls for Dynamometer Test Cell ventilation and pressure control

35.7.9. Motor Control Center

35.8. Fuel System controls

35.9. plaintiff ran the blue prints and distribute the documentation to the various General Motors Dynamometer Wing salaried personnel, General Motors Emission Wing salaried personnel, software personnel and UAW personnel

36. New Instrumentation Booms

36.1. The existing Instrumentation Booms were removed and scrapped

36.2. The Instrumentation booms:

36.2.1. provided routing for analog signal interfacing cable from the CPI front-end equipment to the engine-under-test

36.2.2. provided routing for discrete signal interfacing cable

36.2.3. provided routing for Engine Control Module interfacing from the Operator's Control Cabinet to the engine-under-test

36.2.4. provided housing for the Druck pressure transducers

36.2.5. provided housing for the Emissions Analysis Cylinder Distribution Manifold from the engine-under-test to the Dynamometer Wing Emission Sample Conditioning Unit; Emission Wing personnel provided and installed the Emissions Analysis Cylinder Distribution Manifold, the Dynamometer Wing Emission Sample Conditioning Unit

36.3. The new Instrumentation Booms had three segregated compartments to reduce electrical noise interference between:

36.3.1. the analog interfacing cable

36.3.2. the discrete signal interfacing cable

36.3.3. the Engine Control Module interfacing from the Operator's Control Cabinet to the engine-under-test

36.4. plaintiff specified the Instrumentation Boom compartment segregation

36.5. Farris Mur-ray generated the two-dimensional and three-dimensional drawings for the fabrication of the Instrumentation Booms from sheet metal

36.6. UAW hourly personnel fabricated, painted, and installed the Instrumentation Booms; (to verify plaintiff worked with UAW personnel contact Bob Welsh; plaintiff knew Bob Welsh as the highest ranking UAW representative in GM Technical Center, Engineering Building, Warren, Michigan from approximately CY1989 to CY1995)

36.7. GM salaried Test Cell Operator installed the appropriate Engine Control Module equipment and interfacing for the engine-under-test

36.8. plaintiff completed "Beginning AutoCAD" at General Motors Institute Engineering & Management Institute; Certificate dated May 18, 1989

36.9. When plaintiff completed AutoCAD training plaintiff did the 2-dimentional drawings for the electrical connectors interface panels (plural); Interfacing the engine-under-test to the various Dynamometer Test Cell Measurement and Control Systems including:

36.9.1. Type-K thermocouple interface

36.9.2. Engine Coolant and Engine Oil temperature control interface

36.9.3. Auxiliary analog input interface

36.9.4. Auxiliary pulse signal input interface

36.9.5. Engine Over-speed interface

36.9.6. Engine Coolant circulation rate and Engine Oil circulation rate

36.10. plaintiff designed (with AutoCAD) all the two-dimensional drawings for fabrication by machine shop personnel

36.11. plaintiff designed with AutoCAD all the two-dimensional graphics drawings for the Art Work for the electrical connector interface panels text

36.12. Since UAW Hourly personnel fabricated the Instrumentation Booms from sheet metal no procurement of major components from outside vendors / suppliers was necessary

36.12.1. This is important to note because from plaintiff long list of Project Management experience he has proved to be successful with working with Outside Construction Contractors, GM suppliers, GM salaried personnel, and UAW hourly personnel

36.13. Project management and project coordination of work activity between General Motors Emission Wing salaried personnel, General Motors Dynamometer Wing salaried personnel, and UAW hourly personnel

37. Humidity and Ambient Temperature Sensor per Test Cell

37.1. in the Emission Wing Renovation plaintiff selected EG&G Dew Point Meter and Ambient Temperature Sensor

37.2. the Dynamometer Wing renovation was considering using also EG&G Dew Point Meters and Ambient Temperature Sensors

37.3. plaintiff determined that there was a humidity gradient in the Dynamometer Wing; therefore, two EG&G Dew Point Meters and Ambient Temperature Sensors would not suffice in covering the entire Dynamometer Wing

37.4. plaintiff mathematically determined that lower cost Ambient Temperature Sensors and Relative Humidity sensors could be used instead of the more expensive EG&G Dew Point Meter and Ambient Temperature Sensor

37.5. one Ambient Temperature Sensors and Relative Humidity sensor per Dynamometer Test Cell (approximately 20 units total) approximately the same cost of (2) EG&G Dew Point Meter and Ambient Temperature Sensors

37.6. plaintiff determined the conversion algorithm from (Percent Relative Humidity and Ambient Temperature) to Dew Point for implementation in Dynamometer Test Cell Computer

38. **Dynamometer Test Cell #13 Renovation**

38.1. The first modern, integrated Dynamometer Test Cell renovation at the General Motors Technical Center; completed in CY1990

38.2. plaintiff designed, engineered, and incorporated new CPI front-end equipment into Dynamometer Test Cell #13 renovation; see above in resume for details

38.3. plaintiff designed, engineered, and incorporated new Programmable Logic Controller and PLC Enclosure into Dynamometer Test Cell #13 renovation; see above in resume for details

38.3.1. Including interfacing to Dynamometer Hard Stop safety circuit

38.3.2. Auxiliary temperature safety meters

38.3.3. Engine and Dynamometer RPM safety meters

38.3.4. Manual push button Test Cell interface panel

38.3.5. General Electric Solid State Dynamometer Controller

38.3.6. Engine Coolant and Engine Oil Temperature Control System

38.3.7. Supply and Exhaust Fan for Dynamometer Test Cell ventilation and pressure control

38.3.8. Existing Motor Control Center

38.4. Aaron Trammel fabricated the Fuel System control enclosure that housed the Fuel System control solenoids

38.5. plaintiff incorporated new Instrumentation Booms into Dynamometer Test Cell #13 renovation; see above in resume for details

38.6. plaintiff incorporated new Engine Coolant and Engine Oil Process Control into Dynamometer Test Cell #13 renovation; see above in resume for details

38.7. plaintiff designed, engineered, and incorporated the first Dynamometer Test Cell ventilation and pressure control system into Dynamometer Test Cell #13

38.8. plaintiff new Druck Pressure Transducers into Dynamometer Test Cell #13 renovation; see above in resume for details

38.8.1. after over one year the Druck Pressure Transducers remained within calibration specifications; a significant maintenance time and cost savings

38.9. plaintiff takes no credit for Cell #13 Motor Control Center; this was a piece of extra equipment from the Dynamometer Wing blend-house renovation project

38.10. Specified, ordered, and procured major components associated with:

38.10.1. new CPI Front-end equipment

38.10.2. new Programmable Logic Controller hardware

38.10.3. new Engine Coolant and Engine Oil Process Control equipment

38.10.4. new Honeywell UDC3000 Process Controllers

38.11. Generated the required documentation for the design of:

38.11.1. new CPI Front-end equipment

38.11.2. new Programmable Logic Controller hardware

38.11.3. new Programmable Logic Controller software programming

38.11.4. new Engine Coolant and Engine Oil Process Control equipment

38.11.5. new Honeywell UDC3000 Process Controllers configuration

38.11.5.1. one configuration for Engine Coolant Process Control

38.11.5.2. one configuration for Engine Oil Process Control

38.11.5.3. one configuration for Test Cell Ventilation and pressure control

38.11.6. Supply Fan Variable Frequency Drive configuration

38.11.7. Exhaust Fan Variable Frequency Drive configuration

38.11.8. existing Motor Control Center

38.12. Project management and project coordination of work activity between General Motors Dynamometer Wing salaried personnel, General Motors Emission Wing salaried personnel, software personnel and UAW personnel by writing project activity timeline utilizing Timeline project management software

38.12.1. verify by contacting Bob Welsh; plaintiff knew Bob Welsh as the highest ranking UAW representative in GM Technical Center, Engineering Building, Warren, Michigan from approximately CY1989 to CY1995)

38.13. Provided detailed startup assisted for:

38.13.1. new CPI Front-end equipment (can be verified with Karl Klida)

38.13.2. new Programmable Logic Controller hardware

38.13.3. new Programmable Logic Controller software programming

38.13.4. new Engine Coolant and Engine Oil Process Control equipment (can be verified with John Carver or Dave Van-poel-e-vor-de) new Engine Coolant and Engine Oil Process Control equipment

38.13.5. new Honeywell UDC3000 Process Controllers configuration

38.13.5.1. one configuration for Engine Coolant Process Control

38.13.5.2. one configuration for Engine Oil Process Control

38.13.5.3. one configuration for Test Cell Ventilation and pressure control

38.13.6. Supply Fan Variable Frequency Drive configuration

38.13.7. Exhaust Fan Variable Frequency Drive configuration

38.13.8. existing Motor Control Center

38.14. first modern and integrated Dynamometer Test Cell renovation

38.14.1. Prior to plaintiff renovating Dynamometer Test Cells, Dynamometer Test Cell engineers and managers would come-and-go readily

38.14.1.1. Phil Mo-han, Aaron Shin, Jim K-hill, Dave Thacher, Clark Bell, Steve Kaatz

38.14.2. Prior to plaintiff renovating a Dynamometer Test Cell basically consisted of updating a piece of equipment (like a new exhaust fan) and maybe a fresh coat of paint.

38.14.3. over time Dynamometer Test Cells were becoming a crows nest of one-of-a-kind equipment

38.14.4. Dynamometer Test Cell #13 honestly looked like a new Dynamometer Test Cell looks new!

38.15. Prior to plaintiff renovating Dynamometer Test Cell #13, plaintiff knows of nobody in General Motors Corporation designing, engineering, and project managing an entire Dynamometer Test Cell renovation in-house; a major project like this would have been outsourced to a company like Sverdrup (now Jacobs Engineering) and would have cost General Motors hundreds of thousands of dollars; plaintiff did the complete job for a fraction of the cost

38.16. When plaintiff renovated Dynamometer Test Cell #13 in CY1990 the modern Personal Computer were in their infancy – plaintiff did the work normally associated with approximately nine people

38.16.1. one Instrumentation engineer

38.16.2. one Electrical engineer; the reader has to remember that in the late-1980's a Personal Computer might only have 640 to 1,024 kilobytes of memory (over 1000 times smaller than modern Personal Computers); therefore, each engineering major application like programming the Programmable Logic Controllers might have its own stand-alone programming device

38.16.3. one Process Controls engineer; the reader has to remember that in the late-1980's the modern 3 GHz Personal Computer with 2 Gigabyte plus of memory did not exist; therefore, each engineering discipline would have been assigned to different individuals

38.16.4. one Mechanical engineer

38.16.5. one Project Manager

38.16.6. one AutoCAD designer and one technical designers to generate the documentation

38.16.7. one secretary to copy and distribute the documentation; the reader has to remember that in the late-1980's the modern Microsoft multi-application software was not deployed in Engineering Building Dynamometer Wing (Microsoft Windows 95 equals CY1995); therefore, converting 50 plus pages of CPI Front-end Equipment spreadsheet documentation from Portrait printout to Landscape printout was a major task in late-1980's

38.16.8. one to two technicians for start-up of the equipment

38.17. plaintiff asked to go to personnel

38.17.1. General Motors personnel asks plaintiff a series of questions

38.17.2. people are falsely claiming to be plaintiff boss

38.17.2.1. General Motors asks => Was Don Nagy ever your boss? plaintiff reply => Never

38.17.2.2. General Motors asks => Was Chris Killien ever your boss? plaintiff reply => Never

38.17.2.3. General Motors asks => Was Paul Durrenberg ever your boss? plaintiff reply => Yes (Paul Durrenberg was plaintiff supervisor when plaintiff was a High School co-op student; Paul Durrenberg was never plaintiff boss when plaintiff hired into General Motors as an engineer)

38.17.3. General Motors asks plaintiff – are you ready for 8th level???; plaintiff responded by saying give him one more year

38.17.3.1. please note General Motors never called plaintiff back to personnel for an 8th level or 9th level promotion

38.17.3.2. in retrospect by asking plaintiff are you ready for 8th level General Motors still did not think that plaintiff had earned his 8th level

38.17.3.3. in retrospect plaintiff did the correct thing by not accepting an 8th level position since plaintiff earned his 8th level with the Emission Wing Renovation and plaintiff earned his 9th level with Dynamometer Test Cell #13 renovation

38.17.3.4. plaintiff should have gone from 7th level to 9th level (and received a 1.30 X 1.30 equals 1.69) and received a 69 percent pay increase at minimum

38.17.3.5. in retrospect plaintiff should have received a bonus (over and above his pay raise) for each Dynamometer Test Cell Renovation he completed since a major project like this would have been normally outsourced to a company like Sverdrup (now Jacobs Engineering) and would have cost General Motors hundreds of thousands of dollars more; thereby, saving General Motors hundreds of thousands of dollars in Dynamometer Test Cell renovation costs

38.17.3.6. more pay discrimination evidence later in this resume

39. **Dynamometer Test Cell #3 Renovation**

39.1. plaintiff designed, engineered, and incorporated new CPI front-end equipment into Dynamometer Test Cell #3 renovation; see above in resume for details

39.2. plaintiff designed, engineered, and incorporated new Programmable Logic Controller and PLC Enclosure into Dynamometer Test Cell #3 renovation; see New PLC above in resume for additional details

39.2.1. Including interfacing to Dynamometer Hard Stop safety circuit

39.2.2. Auxiliary temperature safety meters

39.2.3. Engine and Dynamometer RPM safety meters

39.2.4. Manual push button Test Cell interface panel

39.2.5. Meiden AC Solid State Dynamometer Controller

39.2.6. Engine Coolant and Engine Oil Temperature Control System

39.2.7. Supply and Exhaust Fan controls for Dynamometer Test Cell ventilation and pressure control

39.2.8. Existing Motor Control Center

39.3. Aaron Trammel fabricated the Fuel System control enclosure

39.4. plaintiff incorporated new Instrumentation Booms into Dynamometer Test Cell #3 renovation; see above in resume for details

39.5. plaintiff designed, engineered, and incorporated new Engine Coolant and Engine Oil Process Control into Dynamometer Test Cell #03 renovation; see above for details

39.6. plaintiff designed and engineered Dynamometer Test Cell ventilation and pressure control system for Dynamometer Test Cell #03

39.7. plaintiff incorporated new Druck Pressure Transducers into Dynamometer Test Cell #3 renovation; see above in resume for details

39.8. Cell #03 Motor Control Center was a piece of existing equipment; Cell #03 Motor Control Center replace with an Allen-Bardley Motor Control Center at a future date

39.9. Specified, ordered, and procured major components associated with:

39.9.1. new CPI Front-end equipment

39.9.2. new Programmable Logic Controller hardware

39.9.3. new Engine Coolant and Engine Oil Process Control equipment

39.9.4. new Honeywell UDC3000 Process Controllers

39.10. Generated the required documentation for the design of:

39.10.1. over 50 pages of documentation for new CPI Front-end equipment

39.10.2. new Programmable Logic Controller hardware

39.10.3. new Programmable Logic Controller software programming

39.10.4. new Engine Coolant and Engine Oil Process Control equipment

39.10.5. new Honeywell UDC3000 Process Controllers configuration

39.10.5.1. one configuration for Engine Coolant Process Control

39.10.5.2. one configuration for Engine Oil Process Control

39.10.5.3. one configuration for Test Cell Ventilation and pressure control

39.10.6. Supply Fan Variable Frequency Drive configuration

39.10.7. Exhaust Fan Variable Frequency Drive configuration

39.10.8. existing Motor Control Center

39.11. Project management and project coordination of work activity between General Motors Dynamometer Wing salaried personnel, General Motors Emission Wing salaried personnel, software personnel and UAW personnel

39.12. Provided detailed startup assisted for:

39.12.1. new CPI Front-end equipment

39.12.2. new Programmable Logic Controller hardware

39.12.3. new Programmable Logic Controller software programming

39.12.4. new Engine Coolant and Engine Oil Process Control equipment

39.12.5. new Honeywell UDC3000 Process Controllers configuration

39.12.5.1. one configuration for Engine Coolant Process Control

39.12.5.2. one configuration for Engine Oil Process Control

39.12.5.3. one configuration for Test Cell Ventilation and pressure control

39.12.6. Supply Fan Variable Frequency Drive configuration

39.12.7. Exhaust Fan Variable Frequency Drive configuration

39.13. plaintiff reward for renovating Dynamometer Test Cell #3 => Basically nothing

40. **Natural Gas Compressor**

40.1. the Natural Gas Compressor project is an example of plaintiff simultaneously designing, engineering, and / or project managing other Dynamometer Test Cell projects while simultaneously continuing to renovate other Dynamometer Test Cells

40.1.1. plaintiff also made improvements to Dynamometer Test Cell renovations

40.2. plaintiff wrote the specifications for the procurement of one Natural Gas compressor

40.2.1. Natural Gas compressor had to meet Class 1, Division 1, Group D explosion-proof electrical requirements

40.2.2. Natural Gas compressor was to be located outside of the Dynamometer Test Cell exposed to the Summer and Winter temperature conditions

40.2.3. one unique major component of the Natural Gas compressor system was a large Natural Gas dryer used to remove the water vapor from the Natural Gas since the unit was exposed to the winter cold

40.2.4. Dynamometer Test Cell personnel specified Natural Gas compressor pressure (X PSIG) and flow (X CFM) requirements; this information can be verified with Dynamometer Test Cell manager Jim Currie

40.3. plaintiff provided detailed project management / leadership by working with the potential Natural Gas compressor suppliers to continuously refine the specifications, reduce the number of potential suppliers, and answer questions

40.4. plaintiff calculated and specified a new two inch Natural Gas supply line to be installed from the Engineering Building basement near the North Lobby to exterior of Dynamometer Wing near Dynamometer Test Cell #2 / #3 area

40.5. Project management and project coordination of work activity between General Motors Dynamometer Wing salaried personnel and UAW personnel

40.6. Provided detailed startup assisted as needed

40.7. plaintiff reward for the Natural Gas compressor project => basically nothing

41. **Dynamometer Vault Spray Renovation**

41.1. in a Dynamometer Test Cell the engine-under-test exhaust is directed into a large basement vault (over 3 feet wide X over 10 feet long X over 7 feet tall) in a near outside barometric pressure environment

41.2. cooling the Dynamometer Vault from the heat generated by the engine-under-test consisted of ventilation air and spraying recirc water

41.3. What is recirc water? Imagine a washing machine where city water is the clean water a person puts into the washer to clean his clothes. Recirc water is the dirty discharge water from the washer. The recirc water is recirculated over and over again; thereby, getting dirtier over time.

41.4. The combination of the corrosive exhaust gas from the engine-under-test and the recirc water spray caused the concrete dynamometer vaults to deteriorate (literally start to crumble apart) over time

41.5. please note that the Dynamometer Test Cell Operator has to work in the Dynamometer Vault when the engine-under-test is not running to properly suspend the engine-under-test exhaust system; this makes for a dirty and potentially unhealthy work environment

41.6. plaintiff converted the Dynamometer Vault spray from recirc water to clean city water to make for a cleaner and healthier work environment

41.7. using the Programmable Logic Controller the Dynamometer Vault spray could be turned off (thus saving on water consumption) with the option of manually turning on the Dynamometer Vault spray by the Dynamometer Test Cell Operator if needed

41.8. please note: later in the resume plaintiff will replace four Aux. Temperature Safety Meters with a Modicon Analog Input Module; as plaintiff was leaving General Motors in CY1995 he was preparing to further automate the Dynamometer Vault spray by monitoring the Dynamometer Vault temperature with an averaging RTP temperature sensor

42. **Designed a Custom Pulse Circuit Board**

42.1. Kevin, a black male, from Tom Slaughter's electronics group one day came to plaintiff office and asked plaintiff to design a custom pulse delay circuit using IC (integrated circuit) chips

42.2. plaintiff designed the circuit using trigger delay chips

42.3. plaintiff generated the necessary documentation and forwarded the documentation to Kevin

42.4. this proves plaintiff could design electronic circuits; therefore, his depth of skills extended beyond Emission and Dynamometer Laboratory renovations

42.5. this proves plaintiff would help black people; despite the fact General Motors race baited plaintiff on many occasions

42.6. plaintiff reward for designing this custom pulse delay circuit => basically nothing

43. **PSI High Speed and High Channel Count Pressure Measurement System for Turbine Testing (Cell #04 / #05 area)**

43.1. plaintiff procured a PSI High Speed and High Channel Count Pressure Measurement System for Turbine Testing (Cell #04 / #05 area)

43.2. EDS was responsible for integrating the PSI High Speed and High Channel Count Pressure Measurement System into the standard Dynamometer Wing CATS System; contact Chris Killeen to verify

43.3. EDS never proved to plaintiff it could integrate the PSI High Speed and High Channel Count Pressure Measurement System into the standard Dynamometer Wing CATS System

43.4. the PSI High Speed and High Channel Count Pressure Measurement System mysteriously disappeared

44. **Chassis Dynamometer Renovation**

44.1. The Chassis Dynamometer located in the Dynamometer Wing was similar to the Emission Test Sites located in the Engineering Building Emissions Wing but instead of having a twin roll electric dynamometer, the Chassis Dynamometer had a single 48 inch diameter roll electric dynamometer

44.2. plaintiff designed and engineered the Supply and Exhaust Fan controls for Chassis Dynamometer Test Cell ventilation control; the most noticeable difference between the Supply and Exhaust fan controls in the Chassis Dynamometer Test Cell and a standard Dynamometer Test Cell renovation was the size of the motors involved

44.2.1. standard Dynamometer Test Cell Supply Fan motor => 7 ½ H.P.

44.2.2. Chassis Dynamometer Test Cell Supply Fan motor => 250 H.P.

44.2.3. standard Dynamometer Test Cell Exhaust Fan motor => 7 ½ H.P. to 15 H.P.

44.2.4. Chassis Dynamometer Test Cell Exhaust Fan motor => 75 H.P.

44.3. plaintiff designed, engineered, and incorporated new Programmable Logic Controller and PLC Enclosure into Chassis Dynamometer renovation similar to Dynamometer Test Cell #13 renovation; adjusted for Chassis Dynamometer specific requirements

44.4. plaintiff designed and engineered new heat lamp process controls; heat lamps are not part of a typical Emission Test Site

44.5. plaintiff designed new operator's console and specified control room modifications

44.6. Bruce Johnson (TSGF) was responsible for extending the Chassis Dynamometer Test Cell North

44.7. Terri Hostetter recommended using SWEO power controller for the 48 inch diameter roll electric dynamometer

45. **Dynamometer Test Cell #07 Renovation with New Hemi-anechoic Chamber**

45.1. Dynamometer Test Cell #07 was used for measuring engine noise

45.2. When plaintiff renovated Dynamometer Test Cell #07 the Test Cell was single-ended and motored the engine-under-test; therefore, Dynamometer Test Cell #07 was more limited in scope as compared to Dynamometer Test Cell #13 or Dynamometer Test Cell #03

45.3. Nevertheless Dynamometer Test Cell #07 had one highly unique aspect to its renovation, the renovation included the installation of a New Hemi-anechoic Chamber

45.4. To help the reader understand what a Hemi-anechoic Chamber is try to imagine standing alone in an open field in the middle of Kansas or Nebraska; the sounds you make are only reflected by the ground below your feet and no sound reflections from any other direction; a Hemi-anechoic Chamber tries to simulate the experience standing alone in an open field in the middle of Kansas or Nebraska

45.5. plaintiff designed, engineered, and incorporated new CPI front-end equipment into Dynamometer Test Cell #07 renovation; approximately half the size of Cell #13 renovation

45.6. plaintiff designed, engineered, and incorporated new Programmable Logic Controller into Dynamometer Test Cell #07 renovation; approximately half the size of Cell #13 renovation

45.6.1. Including interfacing to:

45.6.2. Dynamometer Hard Stop safety circuit

45.6.3. Auxiliary temperature safety meters

45.6.4. Engine and Dynamometer RPM safety meters

45.6.5. Manual push button Test Cell interface panel

45.6.6. old style General Electric Motor-Generator Dynamometer Controller

45.6.7. Engine Coolant and Engine Oil Temperature Control System

45.6.8. Supply and Exhaust Fan controls for Dynamometer Test Cell ventilation and pressure control

45.7. Existing Motor Control Center

45.8. No new Instrumentation Booms into Dynamometer Test Cell #07 renovation

45.9. plaintiff designed, engineered, and incorporated new Engine Coolant and Engine Oil Process Control into Dynamometer Test Cell #07 renovation; approximately half the size of Cell #13 renovation

45.10. plaintiff designed, engineered Dynamometer Test Cell ventilation and pressure control system into Dynamometer Test Cell #07

45.11. plaintiff designed, engineered, and incorporated new Druck Pressure Transducers into Dynamometer Test Cell #07 renovation; approximately half the size of Cell #13 renovation

45.12. plaintiff designed and specified new Operator's Console; same supplier as Chassis Dynamometer renovation

45.13. Specified, ordered, and procured major components associated with:

- 45.13.1. new Hemi-anechoic Chamber
- 45.13.2. new Operator's Console
- 45.13.3. new CPI Front-end equipment
- 45.13.4. new Programmable Logic Controller hardware
- 45.13.5. new Engine Coolant and Engine Oil Process Control equipment
- 45.13.6. new Honeywell UDC3000 Process Controllers

45.14. Generated the required documentation for the design of (approximately half the size of Cell #13 renovation)

- 45.14.1. new CPI Front-end equipment
- 45.14.2. new Programmable Logic Controller hardware
- 45.14.3. new Programmable Logic Controller software programming
- 45.14.4. new Engine Coolant and Engine Oil Process Control equipment
- 45.14.5. new Honeywell UDC3000 Process Controllers configuration as required
- 45.14.6. Supply Fan Variable Frequency Drive configuration
- 45.14.7. Exhaust Fan Variable Frequency Drive configuration
- 45.14.8. existing Motor Control Center

45.15. Project management and project coordination of work activity between supplier of Hemi-anechoic Chamber, General Motors Dynamometer Wing salaried personnel, General Motors Emission Wing salaried personnel, software personnel and UAW personnel

45.16. Provided detailed startup assisted for:

45.16.1. new CPI Front-end equipment (can be verified with Karl Klida)

45.16.2. new Programmable Logic Controller hardware

45.16.3. new Programmable Logic Controller software programming

45.16.4. new Engine Coolant and Engine Oil Process Control equipment

45.16.5. new Honeywell UDC3000 Process Controllers configuration for Test Cell Ventilation and pressure control

45.16.6. Supply Fan Variable Frequency Drive configuration

45.16.7. Exhaust Fan Variable Frequency Drive configuration

45.16.8. existing Motor Control Center

45.17. to help the reader to understand the magnitude of Dynamometer Test Cell #07 Renovation with New Hemi-anechoic Chamber Compare the reader would have to compare Cell #07 with Cell #06 (a Hemi-anechoic Chamber designed and installed in-house by General Motors prior to plaintiff working in the Dynamometer Wing)

45.18. contact Steve Kaatz and Don Do-zon-berry to verify Dynamometer Test Cell #07 Renovation with New Hemi-anechoic Chamber

45.19. plaintiff reward for renovating Dynamometer Test Cell #07 => Basically nothing

46. **Dynamometer Test Cell #06 Renovation with New Control Consoles**

46.1. Dynamometer Test Cell #06 was used for measuring engine noise

46.2. When plaintiff renovated Dynamometer Test Cell #06 the Test Cell was single-ended Dynamometer Test Cell

46.3. Dynamometer Test Cell #06 renovation was more limited in scope than compared to Dynamometer Test Cell #07

46.4. the renovation included the reuse of an existing General Motors design and General Motors built Hemi-anechoic Chamber

46.5. plaintiff designed, engineered, and incorporated new Programmable Logic Controller into Dynamometer Test Cell #06 renovation; approximately half the size of Cell #13 renovation

46.5.1. Including interfacing to:

46.5.2. Dynamometer Hard Stop safety circuit

46.5.3. Auxiliary temperature safety meters

46.5.4. Engine and Dynamometer RPM safety meters

46.5.5. Manual push button Test Cell interface panel

46.5.6. old style General Electric Motor-Generator Dynamometer Controller

46.5.7. Engine Coolant and Engine Oil Temperature Control System

46.5.8. Supply and Exhaust Fan controls for Dynamometer Test Cell ventilation and pressure control

46.6. Existing Motor Control Center

46.7. No new Instrumentation Booms into Dynamometer Test Cell #06 renovation

46.8. plaintiff designed, engineered, and incorporated new Engine Coolant and Engine Oil Process Control into Dynamometer Test Cell #06 renovation; approximately half the size of Cell #13 renovation

46.9. plaintiff designed and specified new Operator's Console; same supplier as Chassis Dynamometer renovation and Dynamometer Test Cell #07 renovation

46.10. Specified, ordered, and procured major components associated with

46.10.1. new Operator's Console

46.10.2. new Programmable Logic Controller hardware

46.10.3. new Engine Coolant and Engine Oil Process Control equipment

46.10.4. new Honeywell UDC3000 Process Controllers

46.11. Generated the required documentation for the design of (approximately half the size of Cell #13 renovation)

46.11.1. new Programmable Logic Controller hardware

46.11.2. new Programmable Logic Controller software programming

46.11.3. new Engine Coolant and Engine Oil Process Control equipment

46.11.4. new Honeywell UDC3000 Process Controllers configuration as required

46.11.5. existing Motor Control Center

46.12. Project management and project coordination of work activity between supplier of General Motors Dynamometer Wing salaried personnel, General Motors Emission Wing salaried personnel, software personnel and UAW personnel

46.13. Provided detailed startup assisted for

46.13.1. new Programmable Logic Controller hardware

46.13.2. new Programmable Logic Controller software programming

46.13.3. new Engine Coolant and Engine Oil Process Control equipment

46.13.4. new Honeywell UDC3000 Process Controllers configuration as required

46.13.5. existing Motor Control Center

46.14. contact Steve Kaatz and Don Do-zon-berry to verify Dynamometer Test Cell #06 renovation

47. **New Exhaust Fans**

47.1. Prior to plaintiff, renovating a Dynamometer Test Cell basically consisted of updating one piece of equipment (like a new exhaust fan), and maybe a fresh coat of paint. Since Dynamometer Test Cell engineers and managers would come-and-go on a steady basis (Phil Mohan, Aaron Shin, Jim K-hill, Dave Thacher, Clark Bell, Steve Kaatz) after awhile the Dynamometer Test Cells were becoming a crows nest of one-of-a-kind of new equipment

47.2. When plaintiff designed, engineered, and project managed Dynamometer Test Cell #13 renovation you could honestly say - this Dynamometer Test Cell looks new!

47.2.1. plaintiff takes no credit for the initial Cell #13 Exhaust Fan and Cell #03 Exhaust Fan - these were existing pieces of equipment;

47.3. Beginning approximately with Dynamometer Test Cell #07 renovation, plaintiff designed and specified all new Exhaust Fans for the all the Dynamometer Wing Test Cells

47.3.1. plaintiff specified and procured approximately 18 Exhaust Fans

48. **EDS never proved to plaintiff Emissions Range Sense and Selection control using CATS**

48.1. plaintiff provided design, engineering, detailed interfacing, and detailed documentation between the New CPI Front-end equipment and the Dynamometer Wing Emissions Analyzers for range sense and range selection control

48.2. to verify that plaintiff knew the hardware requirements for interfacing to Emissions Analyzers for range sense and range selection control contact Thomas Lawrence or David Bjarnesen at Chrysler Corporation 37200 Amrhein, Livonia, Michigan 48150-1108; while working for DSP Technology, plaintiff was assigned to renovate one test cell renovation for Chrysler - Livonia

48.3. EDS was responsible for the software design and engineering for implementing range sense and range selection control between the New CPI Front-end equipment and the Dynamometer Wing Emissions Analyzers

48.4. EDS never proved to plaintiff the software implementation of range sense and range selection control between the New CPI Front-end equipment and the Dynamometer Wing Emissions Analyzers

48.5. when EDS could not prove the software implementation range sense and range selection control between the New CPI Front-end equipment and the Dynamometer Wing Emissions Analyzers the project would mysteriously disappear

49. **New Dynamometer Wing Ground Wire**

49.1. the Engineering Building Dynamometer Wing electrical grounding was a crows nest of electrical grounding schemes

49.1.1. Dynamometer Basement 480 VAC bus grounding

49.1.2. Dynamometer grounding

49.1.3. Mech Box grounding

49.1.4. General 120 VAC power outlets and lighting grounding

49.1.5. Instrumentation grounding

49.1.6. Dynamometer Bedplate grounding

49.1.7. Engine-under-test grounding

49.2. plaintiff designed a custom Dynamometer Wing Ground Wire scheme to begin the process of elimination the crows nest of electrical grounding schemes as each Dynamometer Test Cell was renovated

49.3. plaintiff would consider his Dynamometer Wing Ground Wire scheme his own unique / priority design

50. **Dynamometer Test Cell #11 Renovation**

50.1. plaintiff designed, engineered, and incorporated new CPI front-end equipment into Dynamometer Test Cell #11 renovation; see above in resume for details

50.2. plaintiff designed, engineered, and incorporated new Programmable Logic Controller and PLC Enclosure into Dynamometer Test Cell #11 renovation; see New PLC above in resume for additional details

50.2.1. Including interfacing to:

50.2.2. Dynamometer Hard Stop safety circuit

50.2.3. Auxiliary temperature safety meters

50.2.4. Engine and Dynamometer RPM safety meters

50.2.5. Modicon Panelmate 2000 Video Based Man-Machine Interface

50.2.6. Meiden AC Solid State Dynamometer Controller

50.2.7. Engine Coolant and Engine Oil Temperature Control System

50.2.8. Supply and Exhaust Fan controls for Dynamometer Test Cell ventilation and pressure control

50.2.9. New Motor Control Center

50.3. Aaron Trammel fabricated the Fuel System control enclosure that housed the Fuel System control solenoids

50.4. plaintiff incorporated new Instrumentation Booms into Dynamometer Test Cell #11 renovation; see resume above for details

50.5. plaintiff designed, engineered, and incorporated new Engine Coolant and Engine Oil Process Control into Dynamometer Test Cell #11 renovation; see resume above for details

50.6. plaintiff designed, engineered Dynamometer Test Cell ventilation and pressure control system into Dynamometer Test Cell #11

50.7. plaintiff designed, engineered, and incorporated new Druck Pressure Transducers into Dynamometer Test Cell #11 renovation; see resume above for details

50.8. New Allen-Bardley Motor Control Center

50.9. Specified, ordered, and procured major components associated with:

50.9.1. new CPI Front-end equipment

50.9.2. new Programmable Logic Controller hardware

50.9.3. new Modicon Panelmate Video Based Man-Machine Interface

50.9.4. new Engine Coolant and Engine Oil Process Control equipment

50.9.5. new Honeywell UDC3000 Process Controllers

50.9.6. new Allen-Bradley Motor Control Center

50.10. Generated the required documentation for the design of:

50.10.1. over 50 pages of documentation for new CPI Front-end equipment

50.10.2. new Programmable Logic Controller hardware

50.10.3. new Programmable Logic Controller software programming

50.10.4. new Modicon Panelmate 2000 Video Based Man-Machine Interface

50.10.5. new Engine Coolant and Engine Oil Process Control equipment

50.10.6. new Honeywell UDC3000 Process Controllers configuration

50.10.6.1. one configuration for Engine Coolant Process Control

50.10.6.2. one configuration for Engine Oil Process Control

50.10.6.3. one configuration for Test Cell Ventilation and pressure control

50.10.7. Supply Fan Variable Frequency Drive configuration

50.10.8. Exhaust Fan Variable Frequency Drive configuration

50.10.9. Motor Control Center

50.11. Project management and project coordination of work activity between General Motors Dynamometer Wing salaried personnel, General Motors Emission Wing salaried personnel, software personnel and UAW personnel

50.12. Provided detailed startup assisted for:

50.12.1. new CPI Front-end equipment

50.12.2. new Programmable Logic Controller hardware

50.12.3. new Programmable Logic Controller software programming

50.12.4. new Modicon Panelmate 2000 Video Based Man-Machine Interface

50.12.5. new Engine Coolant and Engine Oil Process Control equipment

50.12.6. new Honeywell UDC3000 Process Controllers configuration

50.12.6.1. one configuration for Engine Coolant Process Control

50.12.6.2. one configuration for Engine Oil Process Control

50.12.6.3. one configuration for Test Cell Ventilation and pressure control

50.12.7. Supply Fan Variable Frequency Drive configuration

50.12.8. Exhaust Fan Variable Frequency Drive configuration

50.12.9. Motor Control Center

50.13. plaintiff reward for renovating Dynamometer Test Cell #11 => Basically nothing

51. **Modicon Panelmate 2000 Video Based Man-Machine Interface**

51.1. starting in approximately CY2002 plaintiff transitioned from a Manual push button Test Cell interface panel to a Modicon Panelmate 2000 Video Based Man-Machine Interface

51.2. the Modicon Panelmate 2000 communicated with the Programmable Logic Controller via serial communication

51.2.1. as compared to discrete wiring between the Manual push button Test Cell interface panel and the Programmable Logic Controller

51.2.2. saving approximately 64 Input / Output points of discrete wiring between the Manual push button Test Cell interface panel and the Programmable Logic Controller

51.3. the Modicon Panelmate 2000 Video Based Man-Machine Interface now can fit into the Dynamometer Test Cell Operators Console

51.3.1. previous versions of Modicon Panelmate products were to big for the Dynamometer Test Cell Operators Console

51.4. the Modicon Panelmate 2000 Video Based Man-Machine Interface and the Modicon 984-E685 Programmable Logic Controller work together like a hand-in-glove

51.5. plaintiff designed and engineered the software programming of the Modicon Panelmate 2000 Video Based Man-Machine Interface including:

51.5.1. converting the Programmable Logic Controller software from discrete input / output references to Video Based Man-Machine Interface references

51.5.2. the Dynamometer Test Cell start-up sequence ensured that

51.5.2.1. the Dynamometer Motor-Generator was enabled prior to the Dynamometer being turned on

51.5.2.2. the Dynamometer Test Cell Ventilation was enabled prior to the Dynamometer being turned on

51.5.2.3. without getting into all the start-up sequence details it is sufficient to note that the PLC software anticipated a specific Dynamometer Test Cell start-up sequence

51.6. Specified, ordered, and procured major components

51.6.1. Including Modicon Panelmate 2000 and memory back-up module

51.7. Project management and project coordination of work activity between General Motors Dynamometer Wing salaried personnel, General Motors Emission Wing salaried personnel, and software personnel

51.8. Provided detailed startup assistance

52. **Dynamometer Test Cell #06 Legal Issue**

52.1. General Motors has a $20 Million dollar legal issue

52.2. nobody in General Motors can figure out the problem

52.3. eventually General Motors asks plaintiff to try to solve the problem

52.3.1. there is a General Motors Guidelines that specifies Dynamometer Test Cell Ventilation depression setting of 1.0 inch water

52.3.2. many years ago plaintiff told General Motors that the specification was wrong; the Dynamometer Test Cell Ventilation depression setting should be 0.1 inches of water not 1.0 inches of water

52.3.3. General Motors basically tells plaintiff to shut-up (plaintiff was only a 5th or 6th level Project Engineer when plaintiff told General Motors that the specification was wrong)

52.4. when General Motors changes the Dynamometer Test Cell Ventilation depression setting to plaintiff recommendation of 0.1 inch water the problem is solved

52.5. what reward did General Motors give plaintiff for resolving General Motors $20 Million Dollar Dynamometer Test Cell #06 Legal Issue => basically nothing, not even a thank-you plaintiff

52.6. this can be verified by contacting Steve Kaatz or Don Du-zon-berry (General Motors Salaried engineers associated with Dynamometer Test Cell #06 Testing)

52.7. some time passes

52.8. near the end of plaintiff career with General Motors, plaintiff mentions that plaintiff resolved a $20 Million Dollar Dynamometer Test Cell #06 Legal Issue for General Motors and that General Motors did not even say thank-you

52.8.1. General Motors now tells plaintiff that the Dynamometer Test Cell #06 Legal Issue was worth $2 Million dollars not $20 Million dollars

52.8.2. what financial reward did General Motors give plaintiff for resolving General Motors Dynamometer Test Cell #06 Legal Issue => basically nothing

52.8.3. General Motors tells plaintiff thank-you

53. **Dynamometer Test Cell #21 Outside Anechoic Chamber**

53.1. Dynamometer Test Cell #21 was testing active noise reduction

53.2. Dynamometer Test Cell #21 was more limited in scope as compared to Dynamometer Test Cell #07; nevertheless, Dynamometer Test Cell #21 had two unique aspect to its renovation

53.2.1. the test equipment associated with Dynamometer Test Cell #21 active noise reduction testing needed to be outside

53.3. sound wave reflections from Engineering Building Emissions Wing which was in close proximity to Engineering Building, Dynamometer Test Cell #21

53.4. To help the reader understand what a Hemi-anechoic Chamber is imagine standing alone in an open field in the middle of Kansas or Nebraska; the sounds you make are only reflected by the ground below your feet and no sound reflections in any other direction; a Hemi-anechoic Chamber tries to simulate the experience standing alone in an open field in the middle of Kansas or Nebraska

53.5. plaintiff procures the installation of a new Hemi-anechoic Chamber for Dynamometer Test Cell #21

53.6. installed by UAW personnel

54. **Dynamometer Test Cell #15 Renovation**

54.1. plaintiff designed, engineered, and incorporated new CPI front-end equipment into Dynamometer Test Cell #15 renovation; see above resume for details

54.2. plaintiff designed, engineered, and incorporated new Programmable Logic Controller and PLC Enclosure into Dynamometer Test Cell #15 renovation; see above resume for details

54.2.1. Including interfacing to:

54.2.2. Dynamometer Hard Stop safety circuit

54.2.3. Auxiliary temperature safety meters

54.2.4. Engine and Dynamometer RPM safety meters

54.2.5. Modicon Panelmate 2000 Video Based Man-Machine Interface

54.2.6. Dynamometer Controller

54.2.7. Engine Coolant and Engine Oil Temperature Control System

54.2.8. Supply and Exhaust Fan controls for Dynamometer Test Cell ventilation and pressure control

54.2.9. New Allen – Bradley Motor Control Center

54.3. Aaron Trammel fabricated the Fuel System control enclosure that housed the Fuel System control solenoids

54.4. plaintiff incorporated new Instrumentation Booms into Dynamometer Test Cell #15 renovation; see above in resume for details

54.5. plaintiff designed, engineered, and incorporated new Engine Coolant and Engine Oil Process Control into Dynamometer Test Cell #15 renovation; see resume above for details

54.6. plaintiff designed, engineered Dynamometer Test Cell ventilation and pressure control system into Dynamometer Test Cell #15

54.7. plaintiff designed, engineered, and incorporated new Druck Pressure Transducers into Dynamometer Test Cell #15 renovation; see resume above for details

54.8. New Allen-Bardley Motor Control Center

54.9. Specified, ordered, and procured major components associated with:

54.9.1. new CPI Front-end equipment

54.9.2. new Programmable Logic Controller hardware

54.9.3. new Modicon Panelmate 2000 Video Based Man-Machine Interface

54.9.4. new Engine Coolant and Engine Oil Process Control equipment

54.9.5. new Honeywell UDC3000 Process Controllers

54.9.6. new Allen-Bradley Motor Control Center

54.10. Generated the required documentation for the design of:

54.10.1. over 50 pages of documentation for new CPI Front-end equipment

54.10.2. new Programmable Logic Controller hardware

54.10.3. new Programmable Logic Controller software programming

54.10.4. new Modicon Panelmate 2000 Video Based Man-Machine Interface

54.10.5. new Engine Coolant and Engine Oil Process Control equipment

54.10.6. new Honeywell UDC3000 Process Controllers configuration

54.10.6.1. one configuration for Engine Coolant Process Control

54.10.6.2. one configuration for Engine Oil Process Control

54.10.6.3. one configuration for Test Cell Ventilation and pressure control

54.10.7. Supply Fan Variable Frequency Drive configuration

54.10.8. Exhaust Fan Variable Frequency Drive configuration

54.10.9. Allen – Bradley Motor Control Center

54.11. Project management and project coordination of work activity between General Motors Dynamometer Wing salaried personnel, General Motors Emission Wing salaried personnel, software personnel and UAW personnel

54.12. Provided detailed startup assisted for:

54.12.1. new CPI Front-end equipment

54.12.2. new Programmable Logic Controller hardware

54.12.3. new Programmable Logic Controller software programming

54.12.4. new Modicon Panelmate 2000 Video Based Man-Machine Interface

54.12.5. new Engine Coolant and Engine Oil Process Control equipment

54.12.6. new Honeywell UDC3000 Process Controllers configuration

54.12.6.1. one configuration for Engine Coolant Process Control

54.12.6.2. one configuration for Engine Oil Process Control

54.12.7. Supply Fan Variable Frequency Drive configuration

54.12.8. Exhaust Fan Variable Frequency Drive configuration

54.12.9. Allen – Bradley Motor Control Center

54.13. plaintiff reward for renovating Dynamometer Test Cell #15 => Basically nothing

55. **New Motor Control Centers**

55.1. Prior to plaintiff, a Dynamometer Test Cell renovation basically consisted of updating one piece of equipment (like a new exhaust fan), and maybe a fresh coat of paint. Since Dynamometer Test Cell engineers and managers would come-and-go on a steady basis (Phil Mohan, Aaron Shin, Jim K-hill, Dave Thacher, Clark Bell, Steve Kaatz) after awhile the Dynamometer Test Cells were becoming a crows nest of one-of-a-kind equipment

55.2. plaintiff takes no credit for Cell #13 initial Motor Control Center; this was a piece of extra equipment from the Dynamometer Wing blend-house renovation project

55.3. after Dynamometer Test Cell #13 plaintiff continuously improved Dynamometer Test Cell renovations projects

55.4. plaintiff designed and specified all new Allen – Bradley Motor Control Centers for Dynamometer Wing Test Cells

55.5. initially Dynamometer Test Cell #03 had an existing Motor Control Center, but this Motor Control Center was replaced with a Allen – Bradley Motor Control Center

55.6. new Allen – Bradley Motor Control Centers can be verified by contacting Steve Bull at McNaughton-McKay Electric Company Madison Heights, Michigan, the supplier of the new Allen-Bradley Motor Control Centers

56. **Dynamometer Test Cell #08 Renovation**

56.1. plaintiff designed, engineered, and incorporated new CPI front-end equipment into Dynamometer Test Cell #08 renovation; see resume above for details

56.2. plaintiff designed, engineered, and incorporated new Programmable Logic Controller and PLC Enclosure into Dynamometer Test Cell #08 renovation; see resume above for details

56.2.1. Including interfacing to:

56.2.2. Dynamometer Hard Stop safety circuit

56.2.3. Auxiliary temperature safety meters

56.2.4. Engine and Dynamometer RPM safety meters

56.2.5. Modicon Panelmate 2000 Video Based Man-Machine Interface

56.2.6. Dynamometer Controller

56.2.7. Engine Coolant and Engine Oil Temperature Control System

56.2.8. Supply and Exhaust Fan controls for Dynamometer Test Cell ventilation and pressure control

56.2.9. New Allen – Bradley Motor Control Center

56.3. Aaron Trammel fabricated the Fuel System control enclosure that housed the Fuel System control solenoids

56.4. plaintiff incorporated new Instrumentation Booms into Dynamometer Test Cell #08 renovation; see resume above for details

56.5. plaintiff designed, engineered, and incorporated new Engine Coolant and Engine Oil Process Control into Dynamometer Test Cell #08 renovation; see resume above for details

56.6. plaintiff designed, engineered Dynamometer Test Cell ventilation and pressure control system into Dynamometer Test Cell #08

56.7. plaintiff designed, engineered, and incorporated new Druck Pressure Transducers into Dynamometer Test Cell #08 renovation; see resume above for details

56.8. New Allen-Bardley Motor Control Center

56.9. Specified, ordered, and procured major components associated with:

56.9.1. new CPI Front-end equipment

56.9.2. new Programmable Logic Controller hardware

56.9.3. new Modicon Panelmate 2000 Video Based Man-Machine Interface

56.9.4. new Engine Coolant and Engine Oil Process Control equipment

56.9.5. new Honeywell UDC3000 Process Controllers

56.9.6. new Allen-Bradley Motor Control Center

56.10. Generated the required documentation for the design of:

56.10.1. over 50 pages of documentation for new CPI Front-end equipment

56.10.2. new Programmable Logic Controller hardware

56.10.3. new Programmable Logic Controller software programming

56.10.4. new Modicon Panelmate 2000 Video Based Man-Machine Interface

56.10.5. new Engine Coolant and Engine Oil Process Control equipment

56.10.6. new Honeywell UDC3000 Process Controllers configuration

56.10.6.1. one configuration for Engine Coolant Process Control

56.10.6.2. one configuration for Engine Oil Process Control

56.10.6.3. one configuration for Test Cell Ventilation and pressure control

56.10.7. Supply Fan Variable Frequency Drive configuration

56.10.8. Exhaust Fan Variable Frequency Drive configuration

56.10.9. Allen – Bradley Motor Control Center

56.11. Project management and project coordination of work activity between General Motors Dynamometer Wing salaried personnel, General Motors Emission Wing salaried personnel, software personnel and UAW personnel

56.12. Provided detailed startup assisted for:

56.12.1. new CPI Front-end equipment

56.12.2. new Programmable Logic Controller hardware

56.12.3. new Programmable Logic Controller software programming

56.12.4. new Modicon Panelmate 2000 Video Based Man-Machine Interface

56.12.5. new Engine Coolant and Engine Oil Process Control equipment

56.12.6. new Honeywell UDC3000 Process Controllers configuration

56.12.6.1. one configuration for Engine Coolant Process Control

56.12.6.2. one configuration for Engine Oil Process Control

56.12.7. Supply Fan Variable Frequency Drive configuration

56.12.8. Exhaust Fan Variable Frequency Drive configuration

56.12.9. Allen – Bradley Motor Control Center

56.13. plaintiff reward for renovating Dynamometer Test Cell #08 => Basically nothing

57. **Dynamometer Test Cell Ventilation System converted to 24/7 operation**

57.1. when plaintiff designed, engineered Dynamometer Test Cell #13 renovation, General Motors used Dynamometer Test Cell ventilation and pressure control only when the Dynamometer Test Cell had an engine-under-test

57.2. when no engine was being tested, a separate secondary Heating and Ventilation keep a minimum amount of air induced into the Dynamometer Test Cell for human comfort

57.3. because gasoline and other fuels were used in a Dynamometer Test Cell some people rated the Dynamometer Test Cell Class 1, Division 1, Group D (hazardous) requirements for electrical equipment

57.4. converting Dynamometer Test Cell Ventilation System to 24 hours / 7 days a week operation the rating of the Dynamometer Test Cell could be reduced to non-hazardous requirements for electrical equipment

57.5. remember the problem in Dynamometer Test Cell #06 with General Motors maintaining the Dynamometer Test Cell Ventilation depression

57.6. there is also the concern of minimizing Heating and Ventilation costs

57.7. plaintiff redesigned the Dynamometer Test Cell Ventilation System controls to address the above concerns without adding any new major equipment

57.8. plaintiff reward for renovating Dynamometer Test Cell Ventilation System converted to 24 / 7 operation => Basically nothing

58. **Replacement of (4) Aux. Temperature Safety Meter with Modicon Analog Input Module**

58.1. with the renovation of Dynamometer Test Cells with Programmable Logic Controllers and the continuously improved of using Modicon Panelmate 2000 Video Based Man-Machine Interface more enhanced improvements are possible

58.1.1. remember the Modicon Panelmate 2000 communicate with the Programmable Logic Controller via serial communication

58.1.2. plaintiff replace the (4) Auxiliary temperature safety meters with a Modicon Analog Input Module

58.1.3. less equipment to procure and stock

58.1.4. less custom panels to fabricate

58.1.5. greater flexibility for additional enhancements

58.1.6. Aux. Temperature readings could be displayed directly on the Modicon Panelmate 2000 display

59. **Conditioned Air Systems**

59.1. the Condition Air System project is another example of plaintiff simultaneously designing, engineering, and / or project managing other Dynamometer Test Cell projects simultaneously with Dynamometer Test Cell renovations

59.2. plaintiff was responsible for the design, engineering, and project management for seven Condition Air System

59.3. plaintiff wrote the specifications for procurement of seven Condition Air System

59.4. some (not all) of the Condition Air Systems were to be located inside the Dynamometer Wing Attic exposed to extreme Summer temperature conditions (greater than 104 Degrees F)

59.5. General Motors specified Condition Air System temperature, humidity, and Barometric Pressure requirements

59.6. plaintiff provided detailed project management leadership working with the potential Condition Air System suppliers

59.7. plaintiff improved the design of the Condition Air System; thereby, the final construction installation costs were less than the original accepted contract price

59.8. Project management and project coordination of work activity between General Motors Dynamometer Wing salaried personnel, Condition Air System supplier, and construction contractor

59.9. Provided detailed startup assisted as needed

59.10. General Motors selected Environmental Tectonics Corporation, Southampton, PA 18966; plaintiff preference was to go with the other suppliers finalist located in California, USA

59.11. plaintiff reward for the Natural Gas compressor project => basically nothing

60. **Dynamometer Wing Renovation – Project Management**

60.1. plaintiff used Timeline Project Management Software for tracking Dynamometer Test Cell Renovation work activity

60.2. plaintiff designed the Timeline flowchart for both the UAW and GM salary personal work activity (to verify Bob Welsh; plaintiff knew Bob Welsh as the highest ranking UAW representative in GM Technical Center, Engineering Building, Warren, Michigan from approximately CY1989 to CY1995)

60.2.1. plaintiff updated the Timeline flowchart as needed

60.2.2. plaintiff distributed updated Timeline flowcharts to the appropriate UAW and GM salary personal

60.3. plaintiff generated an appropriation for the renovation of 15 Dynamometer Test Cells

60.4. plaintiff procured and approved major components associated with Dynamometer Test Cell renovations

60.5. plaintiff directed General Motors Salary personnel in starting-up Dynamometer Test Cell renovations

60.6. Documentation of Dynamometer Wing Renovation project activity including

60.6.1. major equipment purchases

60.6.2. CPI front-end equipment interfacing wire listings

60.6.3. PLC enclosure hardware drawings

60.6.4. PLC software program documentation

60.6.5. Modicon Panelmate 2000 Man-Machine interface documentation

60.6.6. UDC 3000 Process Controller Configuration documentation

60.6.6.1. for Engine Coolant Temperature control

60.6.6.2. for Engine Oil Temperature control

60.6.6.3. for Dynamometer Test Cell Ventilation control

60.6.7. Documenting capital equipment purchase by tagging capital equipment with General Motors Property tags; (this can be verified by contacting Andy Vir-ros-tek)

61. **Project Management / Leadership – Unique solutions**

61.1. Programmable Logic Controllers – integrated into Emissions Analysis Systems; (see resume above for details); Don Nagy of General Motors Milford Proving Grounds specifically stated that Programmable Logic Controllers has been tried by General Motors before and cannot be made to work for Emission Analysis Systems applications

61.2. DSP Combustion Analysis System – Several years later; (see resume above for details); General Motors Corporation and DSP Technology had a problem with the DSP Combustion Analysis Systems that General Motors Corporation could not solve nor could DSP Technology solve

61.3. Dynamometer Test Cell #13 Renovation; (see resume above for details); the first modern, integrated Dynamometer Test Cell renovation at the General Motors Technical Center; completed in CY1990

61.4. Dynamometer Test Cell #06 Legal Issue; (see resume above for details); General Motors has a $20 Million dollar legal issue and nobody in General Motors can figure out the problem; eventually, General Motors asks plaintiff to try to solve the problem

61.5. New Dynamometer Wing Ground Wire; (see resume above for details); the Engineering Building Dynamometer Wing electrical grounding was a crows nest of electrical grounding schemes

62. **Project Management / Leadership – Major Accomplishments for which plaintiff did not receive a bonus**

62.1. Emission Wing Renovation – Design Coordination; (see above resume for details)

62.2. Emissions Wing Renovation – Project Management; (see above resume for details)

62.3. Dynamometer Test Cell #13 Renovation; (see above resume for details)

62.4. Dynamometer Test Cell #07 Renovation with New Hemi-anechoic Chamber; (see above resume for details)

62.5. Dynamometer Test Cell #11 Renovation; (see above resume for details)

62.6. Dynamometer Test Cell #15 Renovation; (see above resume for details)

62.7. Dynamometer Test Cell #08 Renovation; (see above resume for details)

62.8. Integration of New Programmable Logic Controller (PLC) and Modicon Panelmate 2000 Video Based Man-Machine Interface

62.9. plaintiff took the first modern, integrated Dynamometer Test Cell renovation at the General Motors Technical Center and advanced it to the next higher level

63. **Project Management – For all practical purpose plaintiff ran the Emissions Wing Renovation and Dynamometer Wing Renovation**

63.1. plaintiff did not revive or ask approval from Ward Wiers on a daily basis, weekly basis, or monthly basis

63.1.1. if Ward Wiers had been in a hospital, plaintiff would not have noticed a significant absence during the day-to-day Project Management of the Emissions Wing Renovation

63.2. plaintiff did not revive or ask approval from Dennis Wiese on a daily basis, weekly basis, or monthly basis

63.2.1. if Dennis Wiese had been in a hospital, plaintiff would not have noticed a significant absence during the day-to-day Project Management of the Emissions Wing Renovation

63.3. plaintiff did not revive or ask approval from Jerry Fairbanks on a daily basis, weekly basis, or monthly basis

63.3.1. if Jerry Fairbanks had been in a hospital, plaintiff would not have noticed a significant absence during the day-to-day Project Management of the Dynamometer Wing Renovation

63.4. plaintiff did not revive or ask approval from Jim Thorsen on a daily basis, weekly basis, or monthly basis

63.4.1. if Jim Thorsen had been in a hospital, plaintiff would not have noticed a significant absence during the day-to-day Project Management of the Dynamometer Wing Renovation

64. **Earned the monetary compensation of 3X, 4X, 5X, 6X, 7X, 8X, or 9X his salary compensation**

64.1. one Instrumentation engineer

64.1.1. Instrumentation Console and Custom Enclosure

64.1.2. Emissions Test Site Instrumentation Patch Panel

64.1.3. 12-Channel Strip Chart Recorder and Custom Enclosure

64.1.4. Druck Pressure Transducers

64.1.5. New CPI Front-end Equipment

64.2. one Electrical engineer

64.2.1. Programmable Logic Controller

64.2.2. Overhead Door Logic Controls

64.2.3. New Dynamometer Ground Wire

64.2.4. Modicon Panelmate 2000 Video Based Man-Machine Interface

64.2.5. New Motor Control Centers

64.2.6. the reader has to remember that in the late-1980's a Personal Computer might only have 640 to 1,024 kilobytes of memory (over 1000 times smaller than modern Personal Computers); therefore, each major application like the Programmable Logic Controllers might have its own stand-alone programming device

64.3. one Process Controls engineer

64.3.1. Engine Coolant and Engine Oil Process Control

64.3.2. Dynamometer Test Cell Supply Fan and Exhaust Fan Ventilation Pressure control

64.3.3. Dynamometer Test Cell #06 Legal Issue

64.3.4. Dynamometer Test Cell Ventilation System converted to 24/7 operation

64.3.5. Replacement of (4) Aux. Temperature Safety Meter with Modicon Analog Input

64.3.6. the reader has to remember that in the late-1980's the modern 3 GHz Personal Computer with 2 Gigabyte plus of memory did not exist; therefore, each engineering discipline would have been assigned to different individuals

64.4. one Mechanical engineer

64.4.1. Tylan Mass Flow Controllers

64.4.2. Sample Conditioning Unit

64.4.3. Overhead Track System

64.4.4. Fuel Meter Calibration Cart

64.4.5. Fuel Injector Test Stand renovation

64.4.6. New Instrumentation Booms

64.4.7. Natural Gas Compressor

64.4.8. New Exhaust Fans

64.4.9. Conditioned Air Systems

64.5. one Project Manager

64.5.1. Emissions Wing Renovation – Design Coordination and Project Management

64.5.2. Dynamometer Test Cell #13, #03, #07, #06, #11, #15, #08, and Chassis Dynamometer Renovation

64.6. one AutoCAD and one technical designer to generate the documentation

64.6.1. AutoCAD Drawings

64.6.2. over 50 pages of documentation for new CPI Front-end equipment

64.6.3. new Programmable Logic Controller hardware documentation

64.6.4. new Programmable Logic Controller software documentation

64.6.5. new Modicon Panelmate 2000 Video Based Man-Machine Interface documentation

64.6.6. new Engine Coolant and Engine Oil Process Control equipment documentation

64.6.7. new Honeywell UDC3000 Process Controllers configuration documentation

64.6.7.1. one configuration for Engine Coolant Process Control

64.6.7.2. one configuration for Engine Oil Process Control

64.6.7.3. one configuration for Test Cell Ventilation and pressure control

64.6.8. Supply Fan Variable Frequency Drive configuration

64.6.9. Exhaust Fan Variable Frequency Drive configuration

64.6.10. Allen – Bradley Motor Control Center

64.7. one secretary to copy and distribute the documentation

64.7.1. over 50 pages of documentation for new CPI Front-end equipment

64.7.2. new Programmable Logic Controller hardware documentation

64.7.3. new Programmable Logic Controller software documentation

64.7.4. new Modicon Panelmate 2000 Video Based Man-Machine Interface

64.7.5. new Engine Coolant and Engine Oil Process Control equipment

64.7.6. new Honeywell UDC3000 Process Controllers configuration

64.7.6.1. one configuration for Engine Coolant Process Control

64.7.6.2. one configuration for Engine Oil Process Control

64.7.6.3. one configuration for Test Cell Ventilation and pressure control

64.7.7. Supply Fan Variable Frequency Drive configuration

64.7.8. Exhaust Fan Variable Frequency Drive configuration

64.7.9. Allen – Bradley Motor Control Center

64.7.10. the reader has to remember that in the late-1980's the modern Microsoft multi-application software was not deployed in Engineering Building Dynamometer Wing (Microsoft Windows 95 equals CY1995); therefore, converting 50 plus pages of CPI Front-end Equipment spreadsheet documentation from Portrait printout to Landscape printout was a major task in late-1980's

64.8. one to two technicians for start-up of the equipment

64.8.1. new CPI Front-end equipment

64.8.2. new Programmable Logic Controller hardware

64.8.3. new Programmable Logic Controller software programming

64.8.4. new Modicon Panelmate 2000 Video Based Man-Machine Interface

64.8.5. new Engine Coolant and Engine Oil Process Control equipment

64.8.6. new Honeywell UDC3000 Process Controllers

64.8.6.1. one Engine Coolant Process Control

64.8.6.2. one Engine Oil Process Control

64.8.6.3. one Test Cell Ventilation and pressure control

64.8.7. Supply Fan Variable Frequency Drive configuration

64.8.8. Exhaust Fan Variable Frequency Drive configuration

64.8.9. Allen – Bradley Motor Control Center

65. If General Motors tries to argue that they would not give plaintiff a monetary compensation of 3X, 4X, 5X, 6X, 7X, 8X, or 9X his salary compensation

65.1. after the plaintiff completed the Emissions Wing renovation, a team of managers, engineers, and /or technical personnel (Jim Thorsen, Terri Hostetter, Craig Hetzel, Paul Durrenberg, and Tom Wolff) could not keep the Engineering Building Emissions Wing Test Sites in correlation

65.2. prior to plaintiff renovating Dynamometer Test Cells, General Motors tried various Dynamometer Test Cell engineering and management **teams** - Phil Mohan, Aaron Shin, Jim K-hill, Dave Thacher, Clark Bell, Steve Kaatz

65.3. prior to Dynamometer Test Cell #13 renovation by plaintiff, General Motors considered a Dynamometer Test Cell renovation basically the updating of one piece of equipment (like a new exhaust fan), cleaning, and maybe a fresh coat of paint.

65.4. the Dynamometer Test Cells were becoming a crows nest of one-of-a-kind pieces of equipment; for example Dynamometer Test Cell #13 renovation Motor Control Center was a piece of extra equipment from the Dynamometer Blend-house renovation

66. **If General Motors tries to argue that they would not give plaintiff a monetary compensation of 3X, 4X, 5X, 6X, 7X, 8X, or 9X his salary compensation, then the Dynamometer Test Cell renovation would not been accomplished**

66.1. the plaintiff was the first General Motors person to complete a modern, integrated Dynamometer Test Cell renovation at the General Motors Technical Center using in-house designs

66.2. General Motors would have been forced to outsource the Dynamometer Test Cell renovations to a company like Sverdrup (now Jacobs Engineering)

66.3. prior to renovating Dynamometer Test Cell #13, General Motors did have a meeting with Sverdrup to possibly outsource the Dynamometer Wing Renovation to Sverdrup (now Jacobs Engineering); ask Jerry Fairbanks how large a team of engineers and managers Sverdrup invited to the meeting

66.4. outsourcing the Dynamometer Wing Renovation would have cost General Motors hundreds of thousands of dollars more per Dynamometer Test Cell renovation (See **Exhibit XX** for examples); plaintiff did a Dynamometer Test Cell Renovation for a fraction of the cost

67. **Plaintiff's – Project Management / Leadership – willing to take on management's bad decisions – Example #1**

67.1. plaintiff attended a meeting to discuss disciplinary action against Mel (a UAW painter) who stole a small ball of string

67.2. plaintiff can not believe that Mel might get fired for stealing a small ball of string that has a street value of less that one dollar

67.3. plaintiff states that if General Motors fires Mel for stealing a small ball of string, plaintiff will testify in court that during a recent power outage a General Motors manager took home a portable generator owned by General Motors and had General Motors salary personal install the portable generator; (General Motors property was never returned and General Motors looked a blind eye to the misappropriated property until plaintiff mentioned it)

67.4. What did General Motors award plaintiff for protecting Mel the UAW painter from a frivolous disciplinary action – basically nothing

67.5. What did General Motors award plaintiff for blowing the whistle on the misappropriated portable generator by the General Motors manager – basically nothing

68. **Plaintiff's – Project Management / Leadership – willing to take on management's bad decisions – Example #2**

68.1. at the same meet as item 67 above

68.2. plaintiff also pointed out that Paul Durrenberg caused a major gasoline spill; instead of punishing Paul Durrenberg, General Motors awarded Paul Durrenberg $20,000 (it was not until plaintiff challenged the $20,000 award to Paul Durrenberg that General Motors retracted the award)

68.3. What did General Motors award plaintiff for challenging the $20,000 award to Paul Durrenberg that General Motors eventually recovered – basically nothing

69. Evidence of General Motors continuous pattern compensation discrimination against plaintiff:

Date	SRS Salary	7E06 Mid-point	7E06 Maximum	9th Level > Mid-point
May 01, 1989	$44,916	Not shown	$60,840	???
Plaintiff earns his 9th level with Dynamometer Wing Test Cell #13 renovation				
Sept. 01, 1990	$47,976	$52,800	$63,276	???
Fairbanks / Thorsen recommend plaintiff for 7th level; Evaluation Dec. 12, 1990				
Sept. 01, 1991	$52,800	$55,368	$66,276	???
Fairbanks / Thorsen recommend plaintiff for 7th level; Evaluation Jan. 22, 1992				
Plaintiff compensation statement for CY1992 not in personnel records				
Oct. 01, 1993	$57,432	$58,200	$70,500	???
June. 01, 1994	$61,356	$59,940	$73,680	???
June. 01, 1995	$63,588	$61,920	$75,900	???

70. **Plaintiff's – Project Management / Leadership – willing to take on General Motors discrimination against Mike Byrd**

70.1. Mike Byrd is a white male with a Masters Degree (Economics or Statistics ???) for over eight years by CY1990 / CY1991

70.2. Mike Byrd did Emission Test Site correlation data analysis for General Motors, Engineering Building, Emissions Wing Test Sites

70.2.1. Correlation testing and correlation data analysis is how General Motors ensures that the Emissions Test Sites are generating reliable EPA-type test data results

70.3. To begin understanding how much and how long General Motors discriminated against Mike Byrd the reader has to understand what was normal General Motors salary personnel progression in the CY1990 / CY1991 timeframe

70.3.1. a person with a Bachelor Degree with zero experience equals 5th level

70.3.2. a person with a Bachelor Degree with minimum experience equals 6th level

70.3.3. a person with a Bachelor Degree with moderate experience equals 7th level

70.3.4. a person with a Masters Degree with zero to minimum experience equals 7th level

70.3.4.1. plaintiff meet a black male with a Masters Degree who was a 7th supervisor of one technician (Steve Fry) who was expecting to be 8th level

70.3.5. a person with a Masters Degree with moderate experience equals 8th level

70.3.6. Mike Byrd had a Masters Degree and over eight years of proven experience, and was one of the top three Emission Test Site correlation data analysis experts in General Motors in all of the United States of America (the only two people who might have been better that Mike Byrd were Don Nagy and Ward Wiers)

70.4. Nevertheless, General Motors consistently keep Mike Byrd at 6th level for over eight years and rank him in the same range as salaried technicians with High School degrees

70.5. One day in CY1990 / CY1991, plaintiff gets a request to attend a meeting (plaintiff was not informed in advance that the meeting was for ranking General Motors salaried technicians)

70.6. Some of the people ranking the General Motors salaried technicians were:

70.6.1. Jim Thorsen – probably a 9th level manager

70.6.2. Terri Hostetter – probably a 8th level manager with a High School degree

70.6.3. Craig Hetzel – probably an 8th level manager with a bachelor degree

70.6.4. Paul Durrenberg – probably a 7th level technician with a High School degree in CY1990 / CY1991

70.6.5. Tom Wolff – probably a 7th level technician with a High School degree

70.6.6. Stanley R. Stasko – who should have been 9th level manager

70.7. The ranking begins and people start giving their input; Jim Thorsen tries to pretend to be plaintiff boss and asks for his input; plaintiff tells Jim Thorsen that plaintiff will listen and after all the others have given their input plaintiff will correct the list

70.8. Jim Thorsen, Terri Hostetter, Craig Hetzel, Paul Durrenberg, Tom Wolff, and all the other people at the meeting (except plaintiff) rank Mike Byrd in the middle of the salaried technicians who have High School degrees

70.9. It is the plaintiff who corrects General Motors discrimination against Mike Byrd by placing Mike Byrd at the very top of the list

70.10. Now General Motors is caught with its pants down

70.11. A few days later plaintiff is called to Mike Byrd's office;

70.12. General Motors now begins to try to cover up their discrimination against Mike Byrd by giving Mike Byrd a promotion to 7th level

70.13. plaintiff asks Mike Byrd who supported him for his promotion; Mike Byrd tells plaintiff that he was told everybody at the meeting; plaintiff tells Mike Byrd that is a lie because nobody supported him for a promotion except the plaintiff; it is plaintiff who supported Mike Byrd for immediate promotion to 7th level; it is plaintiff who supported Mike Byrd for a future promotion to 8th level

70.14. plaintiff asks Mike Byrd how much of a pay raise did General Motors offer him; Mike Byrd tells plaintiff ten percent; plaintiff tells Mike Byrd that he should have received significantly larger pay raise

70.15. It is plaintiff who told Mike Byrd he should expect large pay increases from General Motors every year; remember General Motors in CY1990 / CY1991 used a

ranking scale for determining pay increase; people with a low ranking (technicians with a High School degree received small pay increases; professionals with a Masters Degree received large pay increases)

70.16. It is plaintiff who advised Mike Byrd to seek a lawyer and sue General Motors for all the back monies General Motors cheated Mike Byrd out of since he hired into General Motors

70.17. What reward did plaintiff receive for catching General Motors in their discrimination against Mike Byrd – basically nothing

71. General Motors discriminated against Mike Byrd story does not end here

71.1. Remember correlation testing and correlation data analysis is how General Motors ensures that the Emissions Test Sites are generating reliable EPA-type test data results

71.2. Once Mike Byrd was promoted, Mike Byrd was transferred out of the General Motors, Engineering Building, Emissions Wing

71.3. Jim Thorsen, Terri Hostetter, Craig Hetzel, Paul Durrenberg, and Tom Wolff could not keep the Engineering Building Emissions Wing Test Sites in correlation without Mike Byrd; eventually Terry Hostetter was retired

71.4. Denise Bam-mel (probably an 8th level engineer with a Masters Degree) to replaced Terry Hostetter

71.5. Jim Thorsen, Denise Bammel, Craig Hetzel, Paul Durrenberg, and Tom Wolff could not keep the Engineering Building Emissions Wing Test Sites in correlation without Mike Byrd

71.6. eventually Jim Thorsen was retired and Denise Bammel was transfer out

71.7. All the people combined who did not support Mike Byrd for 7th level could not do Mike Byrd's job

72. General Motors organized hostile work environment against plaintiff through compensation discrimination (See Exhibit 7)

72.1. the plaintiff should have been hired in as a 6th level Project Engineer

72.2. plaintiff does not receive his first promotion to 6th level until approximately September 1, 1985, almost two years after plaintiff was hired by General Motors as a professional and received a small 10 percent pay raise

72.2.1. even with the 10 percent pay raise plaintiff salary is approximately 15 percent below salary midpoint for a 6E11 project engineer approximately January 1, 1986; even though the plaintiff is an above average 6E11 project engineer

72.3. General Motors does not record plaintiff CY1983, CY1984, CY1985, CY1986, CY1987, and CY1988 accomplishments; See Items #6 thru #26 in above resume for details)

72.3.1. Humidity Monitoring to help diagnose problem with large printer

72.3.2. Forty-Seven mm diesel particulate filter sampling system

72.3.3. Sartorius Microbalance

72.3.4. Tylan Mass Flow Controllers

72.3.5. Sample Conditioning Unit

72.3.6. Horiba Chassis Dynamometer Controller

72.3.7. Overhead Track System

72.3.8. Emission Wing Renovation – Design Coordination

72.3.9. Programmable Logic Controllers – integrated into Emissions Analysis Systems

72.3.10. Instrumentation Console and Custom Enclosure

72.3.11. Emission Test Site Instrumentation Patch Panel

72.3.12. 12-Channel Strip Chart Recorder and Custom Enclosure

72.3.13. Dew Point Meter and Ambient Temperature Sensor and Custom Enclosure

72.3.14. Instrumentation Interfacing

72.3.15. Large Temperature and Humidity Display

72.3.16. Honeywell HVAC Central Control Station

72.3.17. Smoke Detector Graphics Display Panel

72.3.18. Overhead Door Logic Controls

72.3.19. Emissions Wing Renovation – Project Management

72.3.20. Software Programming Skills and Software Program Management

72.3.21. Fuel Meter Calibration Cart

72.4. So much is missing from plaintiff CY1983 to CY1988 personal records that a reader of plaintiff personnel records would get the impression plaintiff had nothing to do with the Emissions Wing renovation; even though, plaintiff had more to do with the success of the Emission Wing renovation than Denise Wiese, Ward Wiers, Paul Durrenberg, Don Nagy, or any other person.

72.5. the plaintiff is still a 6E11 Project Engineer and did not receive a promotion to 8th level with the Emissions Wing Renovation

72.5.1. plaintiff does not receive any form of bonus for Emissions Wing renovation

72.5.2. There were two other General Motors renovation projects taking place at the General Motors Technical Center simultaneously with the Emissions Wing renovation; in which, Utley – James acted as the general contractor for all three renovations

72.5.2.1. the Emission Wing renovation

72.5.2.2. the Engineering Building, Dynamometer Wing, Underground Tank Farm renovation

72.5.2.3. the new paint lab near Manufacturing A or Manufacturing B building

72.5.3. General Motors specifically requested plaintiff to transfer from the Engineering Building Emissions Wing to the Engineering Building Dynamometer Wing and the plaintiff does not receive a promotion to 8th level (plaintiff is still a 6th level Project Engineer)

72.5.4. plaintiff does not receive any form of bonus from General Motors when General Motors requests plaintiff to transfer from the Engineering Building Emissions Wing to the Engineering Building Dynamometer Wing

72.6. plaintiff does not receive 9th level for Dynamometer Wing Test Cell #13 renovation

73. General Motors never awards plaintiff headcount he earned from CY1983 to CY1995; See partial list of head count replacements that should been awarded to the plaintiff

73.1.1. Jim Daughtery, Doug Newmann, Lee (Denise Wiese's office helper)

73.1.2. Ward Wiers, Ken Welbaum, Leslie Brown

73.1.3. Andy McKenzie, Clark Bell, Jim Ka-hill

73.1.4. David Thatcher, Bob Zuzga, Jim (Dynamometer Wing fuel man)

73.1.5. Karl Klida, Terry Hostetter, Dennis Bammel

73.1.6. Denise Wiese, Jim Thorsen, Chris Killeen

73.1.7. Chris (Denise Wiese's office helper), Tony Schmid-hub-ber

74. General Motors organized hostile environment against plaintiff career (See Exhibit 7)

74.1. Paul Durrenberg tries to hypnotize plaintiff

74.2. an unknown man comes charging in plaintiff office and tries verbally assaulting plaintiff

74.3. General Motors has a group of cars blocks in plaintiff car on South bound Mound Road just North of 12 Mile

74.4. General Motors uses Ron Buch-holz to suggest to plaintiff that plaintiff should leave General Motors

74.5. Paul Durrenberg (technician supervisor) tampers with plaintiff forty-seven mm diesel particulate filter sampling system project

74.6. Jerry Sidlar (instrumentation technician) purposefully gives plaintiff bad information in the Sample Condition Unit project

74.7. Paul Durrenberg purposefully tries to steal plaintiff idea of using a Programmable Logic Controller in the Sample Conditioning Unit project

74.8. Chris Killen (a woman) falsely accuse plaintiff of looking down her blouse; Bob Zuzga (Chris' office partner) is willing to commit perjury to protect Chris from her false accusation

74.9. Paul Durrenberg and Allen Boogaard verbally soliciting plaintiff for oral sex

74.10. mysteriously one day one Druck pressure transducer is found damaged; even though, it would take a pressure six times the rated full scale to damage the pressure transducer

74.11. General Motors race bait plaintiff multiple ways

74.12. After the above racial harassment by General Motors now General Motors attacks plaintiff family. The plaintiff owned a piece of rental property at 7320 Stout in Detroit, Michigan. Plaintiff rented the property to his sister Gerri. It was during this time period when plaintiff's sister Gerri is chased by an unknown black man and is almost physically assaulted. Fortunately a driver just by change happened to be in the area and help Gerri.

74.13. General Motors steals plaintiff personal property; Handbook of Chemistry and Physics; plaintiff won Handbook of Chemistry and Physics at Lawrence Technological University in General Chemistry class (contact Dr. Chris)

74.14. One day plaintiff finds a rat in his house - the workers in the Dynamometer Wing nickname was Dyno Rats

74.15. M.J. Spi-naz-zi and Bill Whitley try 2 against 1 harassing plaintiff near the Engineering Building, Dynamometer Wing, Chassis Dynamometer Test cell

75. General Motors organized hostile work environment against plaintiff religious beliefs (See Exhibit

75.1. Terri Hostetter attacks plaintiff belief in Creation

75.2. Ward Wiers tries to convert plaintiff away from Roman Catholic Church

75.3. General Motors uses suppliers to harass plaintiff belief that abortion is wrong in all situations; Phil and Jim Davies (MTS-PowerTek Farmington Hills, Michigan 48335) – ask plaintiff to name one thing that is always wrong; plaintiff response => Ted; with an aluminum baseball bat looking for Jim

75.4. General Motors uses Gil Troutman of DSP Technology to attack plaintiff's silent praying before meal at lunch

75.5. Jim Thorsen tries to convert plaintiff away from Roman Catholic Church

75.6. General Motors uses an unknown man to ask the plaintiff to prove the existence of God near the end of plaintiff career at General Motors

76. Certified Liturgy Coordinator Department of Christian Worship, Archdiocese of Detroit, Detroit, Michigan

77. Contributed to a book – Prayer Service Composer

77.1. Come Holy Spirit: Practical Prayer Services for Parish Meetings

77.1.1. Archdiocese of Detroit; Ave Maria Press, Notre Dame, Indiana 46556

77.1.2. ISBN # 0-87793-592-0

78. Resigned from General Motors Corporation General Motors Powertrain Warren West approximately August 1995

78.1. plaintiff was a 7E06 Sr. Project Engineer in August 1995

79. Hired by DSP Technology in Ann Arbor, Michigan (January 1997 to CY1998)

80. Masters of Science in Information Management and Communication

80.1. Walsh College (Troy, Michigan); Graduated Summa Cum Laude in August 1999

81. MSX International Auburn Hills, Michigan; (CY1997 to February 2001)

81.1. contractor for Daimler-Chrysler

81.2. MSX International represented the position as a Project Management position; in reality, the position was a secretary position

81.3. most people did not show much interest in the plaintiff's work, and the project eventually failed for reasons not associated with the plaintiff's work

81.4. The plaintiff's position was eliminated.

81.5. The plaintiff's conscious was still sensitive during this period of time and the plaintiff would say - like *retract thought* - at work.

Exhibit - 17

M.C.L.A. 600.5851

Michigan Compiled Laws Annotated Currentness
Chapter 600. Revised Judicature Act of 1961 (Refs & Annos)
Revised Judicature Act of 1961 (Refs & Annos)
Chapter 58. Limitation of Actions (Refs & Annos)
➡600.5851. Disabilities of infancy or insanity at accrual of claim; year of grace; tacking; removal of infancy disability; medical malpractice exception; application to imprisonment disability

Sec. 5851. (1) Except as otherwise provided in subsections (7) and (8), if the person first entitled to make an entry or bring an action under this act is under 18 years of age or insane at the time the claim accrues, the person or those claiming under the person shall have 1 year after the disability is removed through death or otherwise, to make the entry or bring the action although the period of limitations has run. This section does not lessen the time provided for in section 5852. [FN1]

(2) The term insane as employed in this chapter means a condition of mental derangement such as to prevent the sufferer from comprehending rights he or she is otherwise bound to know and is not dependent on whether or not the person has been judicially declared to be insane.

(3) To be considered a disability, the infancy or insanity must exist at the time the claim accrues. If the disability comes into existence after the claim has accrued, a court shall not recognize the disability under this section for the purpose of modifying the period of limitations.

(4) A person shall not tack successive disabilities. A court shall recognize only those disabilities that exist at the time the claim first accrues and that disable the person to whom the claim first accrues for the purpose of modifying the period of limitations.

(5) A court shall recognize both of the disabilities of infancy or insanity that disable the person to whom the claim first accrues at the time the claim first accrues. A court shall count the year of grace provided in this section from the termination of the last disability to the person to whom the claim originally accrued that has continued from the time the claim accrued, whether this disability terminates because of the death of the person disabled or for some other reason.

(6) With respect to a claim accruing before the effective date of the age of majority act of 1971, Act No. 79 of the Public Acts of 1971, being sections 722.51 to 722.55 of the Michigan Compiled Laws, the disability of infancy is removed as of the effective date of Act No. 79 of the Public Acts of 1971, as to persons who were at least 18 years of age but less than 21 years of age on January 1, 1972, and is removed as of the eighteenth birthday of a person who was under 18 years of age on January 1, 1972.

(7) Except as otherwise provided in subsection (8), if, at the time a claim alleging medical malpractice accrues to a person under section 5838a [FN2] the person has not reached his or her eighth birthday, a person shall not bring an action based on the claim unless the action is commenced on or before the person's tenth birthday or within the period of limitations set forth in section 5838a, whichever is later. If, at the time a claim alleging medical malpractice accrues to a person under section 5838a, the person has reached his or her eighth birthday, he or she is subject to the period of limitations set forth in section 5838a.

(8) If, at the time a claim alleging medical malpractice accrues to a person under section 5838a, the person has not reached his or her thirteenth birthday and if the claim involves an injury to the person's reproductive system, a person shall not bring an action based on the claim unless the action is commenced on or before the person's fifteenth birthday or within the period of limitations set forth in section 5838a, whichever is later. If, at the time a claim alleging medical malpractice accrues to a person under section 5838a, the person has reached his or her thirteenth birthday and the claim involves an injury to the person's reproductive system, he or she is subject to the period of limitations set forth in section 5838a.

(9) If a person was serving a term of imprisonment on the effective date of the 1993 amendatory act that added this subsection, and that person has a cause of action to which the disability of imprisonment would have been applicable under the former provisions of this section, an entry may be made or an action may be brought under this act for that cause of action within 1 year after the effective date of the 1993 amendatory act that added this subsection, or within any other applicable period of limitation provided by law.

(10) If a person died or was released from imprisonment at any time within the period of 1 year preceding the effective date of the 1993 amendatory act that added this subsection, and that person had a cause of action to which the disability of imprisonment would have been applicable under the former provisions of this section on the date of his or her death or release from imprisonment, an entry may be made or an action may be brought under this act for that cause of action within 1 year after the date of his or her death or release from imprisonment, or within any other applicable period of limitation provided by law.

(11) As used in this section, "release from imprisonment" means either of the following:

(a) A final release or discharge from imprisonment in a county jail.

(b) Release on parole or a final release or discharge from imprisonment in a state or federal correctional facility.

CREDIT(S)

Exhibit - 18

United States District Court, E.D. Michigan, Southern Division.

Panzy CALLADINE, individually and as Guardian of William Calladine, Plaintiff,
v.
DANA CORPORATION, a Virginia corporation, Defendant.

Civ. A. No. 87-CV-1739-DT.
Feb. 29, 1988.

Wife brought action, individually and as guardian of her husband, against her husband's employer for injuries suffered by husband employee at work. On employer's motions for summary judgment, the District Court, Woods, J., held that: (1) under Michigan law, limitations period applicable to actions charging assault was tolled with respect to husband employee, who had been mentally impaired since time of the accident which was basis for action, but relevant limitations period was not tolled for wife's loss of consortium claim; (2) the 1987 amendment to the Michigan Workers' Disability Compensation Act would be given retroactive application; and (3) the exclusive remedy provision barred husband employee's intentional tort claim against employer, as there was no factual basis for concluding employer had actual knowledge that its plant design and layout were certain to cause employee's injury and willfully disregarded that knowledge.

Judgment for employer.

West Headnotes

[1] KeyCite Citing References for this Headnote

241 Limitation of Actions
241II Computation of Period of Limitation
241II(C) Personal Disabilities and Privileges
241k74 Insanity or Other Incompetency
241k74(1) k. In General. Most Cited Cases

Under Michigan law, limitations period applicable to actions charging assault had not begun to run, although injury occurred almost nine years ago, where injured individual had been mentally impaired since time of accident which was basis of action, although defendant claimed limitations period should have begun running as injured individual's rights had been capably handled at least since time guardian and attorney began caring for his rights. M.C.L.A. §§ 600.5805(2), 600.5851.

[2] KeyCite Citing References for this Headnote

241 Limitation of Actions
241II Computation of Period of Limitation

241II(C) Personal Disabilities and Privileges
241k74 Insanity or Other Incompetency
241k74(1) k. In General. Most Cited Cases

Under Michigan law, disability savings provision did not apply to loss of consortium claim of wife of injured individual, although injured individual had been mentally impaired since time of accident which was basis for action. M.C.L.A. § 600.5851(1).

[3] KeyCite Citing References for this Headnote

413 Workers' Compensation
413I Nature and Grounds of Employer's Liability
413k54 Retroactive Operation of Statutes
413k58 k. Effect of Acts on Other Statutory or Common Law Rights of Action and Defenses. Most Cited Cases

The 1987 amendment to the exclusive remedy provision of the Michigan Workers' Disability Compensation Act would be given retroactive application, and accordingly, the amendment to the statute, rather than a prior judicial decision, provides the appropriate threshold for determining whether an employee may bring an intentional tort action against an employer, regardless of whether the intentional tort occurred prior or subsequent to the judicial decision. M.C.L.A. § 418.131.

[4] KeyCite Citing References for this Headnote

413 Workers' Compensation
413XX Effect of Act on Other Statutory or Common-Law Rights of Action and Defenses
413XX(A) Between Employer and Employee
413XX(A)1 Exclusiveness of Remedies Afforded by Acts
413k2084 k. In General. Most Cited Cases

Exclusive remedy provision of the Michigan Workers' Disability Compensation Act barred employee's intentional tort claim against employer that was based on design and layout of employer's plant, although employer placed drinking fountain, employees' time clock, and restroom in aisleway used by fork lift trucks; there was high volume of pedestrian traffic in the aisleway and only one prior accident, so there was no factual basis for concluding that employer had actual knowledge that its plant design and layout were certain to cause employee's injury and willfully disregarded that knowledge. M.C.L.A. § 418.131.

*701 Barry P. Waldman, Detroit, Mich., for plaintiff.

Edward D. Plato, Farmington, Hills, Mich., for defendant.

MEMORANDUM OPINION AND ORDER

WOODS, District Judge.

Plaintiff Panzy Calladine brings this action individually and as guardian of her husband William Calladine. On May 30, 1978, William was working for defendant Dana Corporation (Dana) at its plant in Ecorse, Michigan. After drinking at a water fountain, William was struck and seriously injured by a fork lift truck. He has been mentally impaired since the time of the accident. He seeks damages resulting from Dana's allegedly intentional assault, i.e., knowingly exposing him to a hazardous working condition without providing any warnings. Panzy Calladine seeks damages for loss of consortium.

Dana files two motions for summary judgment, claiming that plaintiff's claims are barred under (1) applicable statute of *702 limitations periods and (2) the Michigan Workers' Disability Compensation Act's exclusive remedy provision.

1. STATUTE OF LIMITATIONS

A. *William Calladine's Claim*

[1] The statute of limitations for actions charging assault is two years. Mich.Comp.Laws § 600.5805(2). Unless tolled, the statute began to run at the time of the accident on May 30, 1978, and expired two years later. In this case the statute has been tolled. Michigan's disability savings provision applicable to William's assault claim, *id.* § 600.5851, provides that an individual mentally incompetent at the time a cause of action accrues may file the claim before the applicable limitations period runs *after* the disability is removed. Since William remains mentally incompetent, the statute has not begun to run even though the injury occurred almost nine years prior to the filing of this suit. *See Paavola v. St. Joseph Hosp. Corp.*, 119 Mich.App. 10, 14-15, 325 N.W.2d 609 (1982) (statute permits tolling for a "period potentially many decades long").

Dana nonetheless argues that the circumstances of this case are unique and dictate that the statute of limitations be deemed to have begun running when the first suit was filed. According to Dana, William's rights have been capably handled since at least 1981, when a guardian and an attorney began caring for his rights. In other words, asserts Dana, William has been in a far better position legally than the average individual who must attend to his or her legal rights without such assistance. Regardless of the persuasiveness of Dana's arguments, Michigan courts have consistently held otherwise. In a string of decisions, the Michigan Court of Appeals has found that the statute does not begin to run even with the appointment of a guardian, *see, e.g., Wallisch v. Fosnaugh*, 126 Mich.App. 418, 426, 336 N.W.2d 923 *leave to appeal denied*, 418 Mich. 871 (1983); *Paavola*, 119 Mich.App. at 14, 325 N.W.2d 609, or next friend, *Rittenhouse v. Erhart*, 126 Mich.App. 674, 679, 337 N.W.2d 626 (1983), *modified on other grounds*, 424 Mich. 166, 380 N.W.2d 440 (1986), on behalf of a mentally incompetent person.[FN1]

FN1. The fact that an individual has retained an attorney offers some evidence that the individual is mentally competent, but not conclusive evidence. *Davidson v. Baker-Vander Veen Construction Co.*, 35 Mich.App. 293, 192 N.W.2d 312, *leave to appeal denied*, 386 Mich. 756 (1971). Dana offers the fact that William has been represented by an attorney to show that William's legal rights have been capably handled. Dana does not argue that William is mentally competent.

B. *Panzy Calladine's Claim*

[2] Unlike William's assault claim, Panzy's loss of consortium claim does not fall within the disability savings provision. Mich. Comp. Laws § 600.5851(1) extends the period of limitations for mentally incompetent individuals or those "claiming under" such individuals. Michigan courts nevertheless hold that a person bringing a loss of consortium claim maintains a separate and independent cause of action and does not claim under an injured mentally incompetent person-even if the claims arise from the same set of circumstances. *Wold v. Jeep Corp.*, 141 Mich.App. 476, 367 N.W.2d 421, *leave to appeal denied*, 423 Mich. 859 (1985); *Walter v. City of Flint*, 40 Mich.App. 613, 199 N.W.2d 264 (1972).

2. INTENTIONAL TORT EXCEPTION TO THE MICHIGAN WORKERS' COMPENSATION ACT'S EXCLUSIVE REMEDY PROVISION

[3] Dana contends that William's intentional assault claim is barred by the exclusive remedy provision of the Michigan Workers' Disability Compensation Act (Act), Mich.Comp.Laws § 418.131, *amended by* 1987 Mich.Pub. Act No. 28. The provision states that an employee's recovery of workers' compensation benefits shall be the employee's exclusive remedy against the employer. Various panels of the Michigan Court of Appeals have disagreed as to whether the Michigan legislature intended an exception for intentional torts. *E.g., Eide v. Kelsey-Hayes Co.*, 154 Mich.App. 142, 163-64, 397 N.W.2d 532 (1986), *leave *703 to appeal granted on other grounds,* 428 Mich. 873, 402 N.W.2d 468 (1987); *Leonard v. All-Pro Equities, Inc.*, 149 Mich.App. 1, 5-6, 386 N.W.2d 159 (1986). The Michigan Supreme Court in *Beauchamp v. Dow Chemical Co.*, 427 Mich. 1, 398 N.W.2d 882 (1986), resolved the dispute by recognizing the following intentional tort exception to the exclusive remedy provision:

An intentional tort "is not ... limited to consequences which are desired. If the actor knows that the consequences are certain, or substantially certain, to result from his act, and still goes ahead, he is treated by the law as if he had in fact desired to produce the result." It does not matter whether the employer wishes the injury would not occur or does not care whether it occurs. If the injury is substantailly certain to occur as a consequence of actions the employer intended, the employer is deemed to have intended the injuries as well.

Id. at 21-22, 398 N.W.2d 882 (footnotes omitted).

Less than two months later, a bill was introduced in the Michigan senate in part to clarify the exclusive remedy provision in light of the *Beauchamp* decision. As introduced, the bill required an employee to show that an employer intended both the acts giving rise to the injury *and* the resulting injury. Senate Bill 67, § 132(1); Summary of Michigan Senate Bill 67, Senate Analysis Section (Feb. 2, 1987) (unofficial legislative history). Proponents of the bill characterized situations permitting employees to pursue such claims against employers as "extreme cases." Opponents argued that the bill would do away with the *Beauchamp* exception to the exclusive remedy provision, unduly restricting the rights of injured employees to seek redress against employers and drastically skewing the workers' compensation system in favor of employers. *See* First, Second & Third Analyses to Senate Bill 67, Senate Fiscal Agency (Mar. 23, Apr. 16 & May 26, 1987) (unofficial statements of legislative intent).

In reaching what appears to be a compromise between the two positions, the Michigan legislature amended the exclusive remedy provision to permit intentional tort claims against an employer, but requiring an employee to meet a higher threshold than set forth in *Beauchamp:*

Sec. 131(1) The right to the recovery of benefits as provided in this act shall be the employee's exclusive remedy against the employer for a personal injury or occupational disease. The only exception to this exclusive remedy is an intentional tort. An intentional tort shall exist only when an employee is injured as a result of a deliberate act of the employer and the employer specifically intended an injury. An employer shall be deemed to have intended to injure if the employer had actual knowledge that an injury was certain to occur and willfully disregarded that knowledge. The issue of whether an act was an intentional tort shall be a question of law for the court. This subsection shall not enlarge or reduce rights under law.

1987 Michigan Pub. Act No. 28 (effective May 14, 1987). As enacted, the amendment permits an employee to sue an employer for an on-the-job injury if, and only if, there is a deliberate act by the

employer, committed with the specific intent to injure an employee. Specific intent is shown where an employer had actual knowledge that its act was certain to injure an employee and willfully disregarded that knowledge.

The last sentence of the amendment to § 418.131, which states that "[t]his subsection shall not enlarge or reduce rights under law," is particularly important since it indicates the legislature's intent as to whether the amendment shall be given retroactive application. Although statutes generally are presumed to operate prospectively, they shall be held to operate retrospectively in Michigan if they "operate in furtherance of a remedy already existing and ... neither create new rights nor destroy existing rights." *Selk v. Detroit Plastic Products*, 419 Mich. 1, 9-10, 345 N.W.2d 184 (1985); *see also McGillis v. Aida Engineering, Inc.*, 161 Mich.App. 370, 373-75, 410 N.W.2d 817 (1987) (applying *Selk* guideline to the Michigan Workers' Disability Compensation Act and concluding that an amendment to § 418.641 *704 should be given retroactive application); *Spencer v. Clark Township*, 142 Mich.App. 63, 66-69, 368 N.W.2d 897 (1985) (retroactive application of an amendment to § 418.161 of the Act). This Court has found no reported decisions considering whether the amendment should be given retroactive application. Nevertheless, the amendment as well as Public Act 28 as a whole contains no language indicating, even indirectly, that the amendment is not intended to operate retroactively. To the contrary, the amendment contains the specific language outlined in *Selk* as a basis for giving a statute retroactive application. Furthermore, the only reasonable explanation for the inclusion of the *Selk* language in the statute is the legislature's intent that the amendment receive such application.

Because of its retroactive application, the amendment to § 418.131, not *Beauchamp,* gives the appropriate threshold for determining whether an employee may bring an intentional tort against an employer.[FN2] The higher standard necessarily applies regardless of whether the intentional tort occurred prior or subsequent to the *Beauchamp* decision. Finally, as stated in the amendment, the issue of whether an intentional tort occurred is a question of law for the court.

FN2. This Court disagrees with courts that have continued to apply the less strict *Beauchamp* standard following the amendment to the Act, *see Morgan v. Church's Fried Chicken*, 829 F.2d 10 (6th Cir.1987); *Eads v. Simon Container Machinery, Inc.*, 676 F.Supp. 786 (E.D.Mich.1987), although it fully agrees with the results reached in those cases.

[4] William bases his intentional tort claim on the design and layout of Dana's Ecorse plant.[FN3] He offers evidence showing that Dana placed the drinking fountain, as well as the employees' time clock and restroom, in an aisleway used by fork lift trucks. The parties agree that each workday at least 200 individuals walked across the aisleway during the three eight-hour shifts at the plant.

FN3. Plaintiff's counsel offered no evidence in support of William's claim until the filing of a rebuttal to Dana's reply brief. Local Court Rule 17 permits parties to file a brief in support of a motion, a brief in opposition, and a reply brief. Reply briefs are limited to 5 pages and shall be filed not less than 3 court days before oral argument. *Id.* 17(i). Additional briefs and supporting documents may be filed only if a party brings an *ex parte* motion or written request and obtains an *ex parte* order permitting such filing. *Id.* 17(j). Plaintiff's counsel filed the 7-page rebuttal the day before oral argument without first obtaining an order permitting the filing.

The driver of the fork lift truck involved in William's injury, however, knew of only one other accident occurring in the aisleway.[FN4] Although not mentioned in a written statement he prepared immediately following the accident, he asserted in a subsequent deposition that the aisleway was poorly lit and too narrow to accommodate both pedestrian and industrial equipment traffic. He further asserts that he notified Dana officers of the hazardous condition in the aisleway.

FN4. Dana's safety engineer disputes the fork lift driver's assertion. He claims that no pedestrian accidents occurred in the aisleway from 1972 to the date of William's injury. William, on the other hand, refers to "other accidents" at the plant involving fork lift trucks. Plaintiff's Rebuttal to Defendant's Reply Brief 4. He offers no evidence to support that contention, however.

Construing the evidence in favor of William's claim shows that William can establish, at best, gross negligence by Dana in failing to modify the layout of its plant. Given the high volume of pedestrian traffic in the aisleway and the single prior accident in the aisleway,[FN5] this Court has no difficulty concluding as a matter of law that William cannot maintain his intentional tort claim against Dana. There is no factual basis for concluding that Dana had actual knowledge that its plant design and layout were certain to cause an employee's injury and willfully disregarded that knowledge.

FN5. *See Morgan*, 829 F.2d at 12 ("The allegation that plaintiff's place of employment had been robbed on six previous occasions might be sufficient to support a finding that plaintiff's injury was likely to occur absent additional safety precautions, but [is insufficient] to support a finding that plaintiff's injury was certain or substantially certain to occur.")

*705 ORDER

For the above reasons, IT IS HEREBY ORDERED that summary judgment be GRANTED in favor of defendant.

SO ORDERED.

E.D.Mich.,1988.
Calladine v. Dana Corp.
679 F.Supp. 700

Motions, Pleadings and Filings (Back to top)

• 2:87CV71739 (Docket) (May 23, 1989)
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