GARDEN CITY COMMUNITY COLLEGE

ACADEMIC PROGRAM REVIEW REPORT

Welding Technology

Associates in Applied Science
Industrial Fabricator/Welder Certificate A and C

May 2019

GARDEN CITY COMMUNITY COLLEGE

Signature Page and Archiving

Vice President of Instruction — Date: 3-29-19

Vice President of Institutional Effectiveness & Accountaiblity — Date: 6/24/19

President — Date: 7-24-19

Archiving:

Division Leader submits to VP of Institutional Effectiveness & Accountability.

1. A complete electronic version of the Academic Comprehensive Program Review
2. All documentation (electronic)
3. A signed signature page

GARDEN CITY COMMUNITY COLLEGE

Program Review
Faculty and Dean Verification

I verify I have been an active participant in the program review process and have read this Program Review Report to be submitted to the Program/Department Review Committee:

_____ Date 3-29-19
Program Director

_____ Date 3/29/19

_____ Date 3/29/19

_____ Date _____

_____ Date _____

I verify that this program review report is ready to be reviewed for feedback and action by the Program/Department Review Committee.

_____ Date 3/29/19
Division Leader

As dean of the Academic or Technical Education and Workforce Development Division, I verify that this program review report is ready to be reviewed for feedback and action by the appropriate Program/Department Review Committee. If revisions to original submission of the report are requested (by the committee), I understand another signature by me will be required:

_____ Date 3/29/19
Dean

Adapted from Azusa Pacific University, Arizona State University, & Tyler Junior College, 2017.

Table of Contents

Program Review Components

Component A - Mission and Context

A.1 Program Mission and Purpose

A.1a ***State your program's mission and purpose and how it helps to fulfill the broader mission of GCCC.***

The mission of the Welding Technologies Program at Garden City Community College is to train skilled craftsmen to be successful in the construction and manufacturing fields related to welding. Provide students with not only welding skills but also a positive attitude and a good work ethic upon completion of the welding program. We feel that our mission directly fulfills the GCCC mission by teaching our students skills in which they can gain employment in the welding trades and become positive contributors to society by being financially secure and ethical.

A.1b ***Briefly describe where your program fits within the college's structure (e.g. division/dept.) and what credentials and/or areas of specialization it grants.***

At GCCC, this program falls under workforce development.

This program was reintroduced in 2008 to serve the needs of booming Oil and Gas industry. We offer the following degrees, certificates, and industry recognized credentials:

Degree
- Associate in Applied Science with a focus on Welding

Certificate
- 17 Credit Hour Basic Welding Certificate
- 46 Credit Hour Industrial Welder Certificate

Code/Standard Qualification/Certification
- ASME Boiler and Pressure Vessel Code
- ASME B31.1 Power Piping
- ASME B31.3 Process Piping
- AWS D1.1 Structural Steel Welding Code
- API 1104 Standard for Cross Country Pipeline and Related Facilities

A.1c ***Briefly, discuss the trends in higher education related to the need for your program and identify how the program is responsive to the needs of the region or broader society it intends to serve.***

Local and regional employers, suppliers, and educators sit on an advisory board that provides ideas and direction for the program. This guidance and governance from KBOR and GCCC along with resources from Palmer Tank and Mfg., Sunflower Electric, and an array of other companies allows this program to expand, stay current, and forge a path into the future of the welding industry. This Advisory board pulls insight from local businesses, regional partners, and national partners such as Lincoln Electric.

A.2 Progress Since Last Review

A.2a ***Before commencing with this review, attach the Program Goals with Recommended Action Steps (or equivalent) (Template Appendix A), as well as the Administrative Response to those goals (Template Appendix B), and your Planning Documents (Appendix D) from your last review.*** **Identify the original goals from your report as well as any new goals that emerged from your annual reports and in the planning process and provide evidence your progress toward accomplishing them. (If you don't have a copy, ask your Dean).**

Program Goals from 2015-16 Program Review

A. Develop, outfit a Pipe Lab for Pipefitting Training
   a. This Goal has been on hold and will be completed Fall 18. We currently have all of the fittings necessary to construct our pipe lab. We now have a location to facilitate our Pipe Fitting Training. We will be using the Northeast of the old Ammonia Training Center in the ANNEX building to build our pipe lab. In Fall 2018 our students will be the first to utilize this space and build the core components of the pipe lab

B. Revamp, Train, and Fabricate Tool Box For Students in Layout and Fabrication.
   a. Goal met in November of 2017. We revamped the Layout and Fabrication Final Project to include more design time. We trained students in design, layout and fabrication of a toolbox. Additionally, we trained our students to use our CNC Plasma cutting system and our 110-ton Shear and Brake.

C. Maximize Enrollment
   a. This goal was completed in Fall 2017 by recruiting at various local high schools, working tradeshows, and organizing multiple campus tours. We also organized and successfully hosted our 2nd annual GCCC Welding Competition. At this competition, we had 14 participants in 2017. In 2018 we nearly tripled our participants to 37. Additionally, the KanTrain grant funded a commercial for the Welding Program that we believe was highly successful. Our vigorous recruiting and the success of our competition has led to the welding program be completely full with a waiting list in Fall 2018

D. Develop an apprenticeship and summer work program with local industries.
   a. Goal not met. Currently, we are a two-semester program, this does not allow for a summer internship or a summer work program. It is the hope of the welding program to offer a two-year option in the future. If the implementation of a two-year welding program is successful, an internship will be a part of the program requirements.

E. Develop new GCCC Training Programs, Hire one adjunct instructor
   a. Goal not met. Although we have implemented some new trainings for Tyson Fresh Meats, our current staff was able to handle the workload. If additional trainings are offered, we will explore the hiring of one adjunct.

F. Fuel Community involvement in GCCC Programs and Higher Education. Implement an Adult Education Class on Welding for the Non-welder.
   a. Goal not met. We do offer a course that covers the target area of this goal, Weld-110 Intro to AWS. Although this class is well implemented, it is not specifically designed or oriented to just this target demographic. The purpose of this goal is to offer a class specifically designed for adults not interested in welding as a career. The welding department is currently working on a Metal Arts class to meet this goal.

G. Students continuing their education in the Industrial Technologies Field after GCCC. Track student success stories.
   a. Goal met in 2016 to present. We achieved this goal with support from the KanTrain Grant. Amanda White (KanTrain Grant Coordinator) initiated and completed this goal with the help from welding faculty. We will continue to track student success for our Perkins Grand Follow-Up reporting.

H. Keep pace with Industry. Attend American Welding Society FabTech show.
   a. Goal Met Fall 2017. Kurt Wenzel and Amanda White attended FabTech in Chicago, Illinois. Wenzel took advantage of a variety of different training sessions while in attendance.

I. Send Norman Wyatt for CWI/CWE Certification
   a. Goal met Fall 2017. Norman attended the CWI/CWE Seminar in Hutchinson, Kansas in October 2017. Unfortunately, Norman did not meet the minimum scores to earn the certification. Norman will re-attend the seminar and re-take the test as soon as we have funding secured.

J. Update Courses using recommendations of the GCCC Welding Advisory Board
   a. Goal met. The Welding Program holds an advisory board meeting at the end of each fall and spring semester. At the conclusion of each meeting, the welding faculty revisit the minutes from the meeting and make changes to curriculum base on the board's recommendations.

K. Offer More Night Classes. Talk with Local business and industry to discover needs for the community
   a. Goal met in Fall 2017. We are currently running a pilot group for Tyson Fresh Meats in our existing Weld-110 Intro to AWS class. If deemed successful by Tyson and the GCCC Welding Faculty, we will look at offering a class specifically geared for Tyson's needs. The class will be in the evening.

NOTE: The information for Data Tables required in Components B-E will be provided to the fullest extent possible by the Office of Institutional Effectiveness, Planning, and Research (IEPR). Data collection for faculty will be as of November 1 and student enrollment will be as of October 15 for students of the year prior to the submission of the report (follows IPEDS delineation). Programs ***may*** choose to update data beyond November 1 or October 15 of the year prior to the submission of the report. Data collection for student completion, GPA, and class size will end by June 30 of the year prior to the submission of the report. Programs may need to supplement the tables with information unavailable to IEPR. In such cases, programs ***must*** specify collection methods and dates (or date ranges). For example, faculty data are recorded at the department level and may not accurately reflect the program assignment. The program is encouraged to review faculty data and make adjustments according to program records. Please provide IEPR with any updated faculty data tables.

Data queries can be found in Earth Reports under Accreditation in the Program Review folder.

Component B - Faculty Characteristics and Qualifications

The following faculty classification definitions apply to the data exhibits in section B.

- Full-time faculty – faculty whose load is 100% of a full-time contract within the program/department
- Part-time faculty – faculty whose load is less than 100% of a full-time contract within the program/department

B.1 Faculty Qualifications

B.1a *Faculty listed below are those who taught courses for the program within the "17-18" academic year as well as those on the "18-19" faculty roster from the Dean's office as of November 1st. (Insert rows as needed).*

Faculty Qualifications			
Name of Faculty Member	Highest Degree Earned and Date of Acquisition (provided by dept.)	Institution of highest degree (provided by dept.)	Certifications, practices, specialties, etc. related to the discipline that illustrate qualifications
[Full-time faculty listed here]			
Kurt Wenzel	HS Diploma 2004	Spencer High School- Spencer, Wisconsin	AWS Certified Welding Inspector, NCCER Core Curricula Instructor, NCCER Welding Instructor, NCCER Pipefitting Instructor, FLC Forklift Train the Trainer, CWED Work Ethic Trainer, NSC Forklift Operator
Devin Wackerla	HS Diploma 2006	Scott City High School- Scott City, Kansas	AWS Certified Welding Inspector, MWI Master Pipe Welder and Fitter, NCCER Core Curricula Instructor, NCCER Welding Instructor, NCCER Pipefitting Instructor, FLC Forklift Train the Trainer, NSC Forklift Operator
Norman Wyatt	GED 1980	GCCC- Garden City, Kansas	FLC Forklift Train the Trainer, NSC Forklift Operator

B.2 Faculty Demographics

B.2a *Faculty listed below are those who taught courses for the program within the "17-18" academic year as well as those on the "18-19" faculty roster from the Dean's office as of November 1st.*

Faculty Demographics						
	Full-time		Part-time		Total	
	Female	Male	Female	Male	Female	Male
a.) Faculty who are						
White, non-Hispanic	0	3	0	0	0	3
Totals						
e.) Number of faculty whose highest degree is a bachelor's	0	0	0	0	0	0

B.3 Faculty Scholarship

B.3a ***Provide, in tabular or report format, a comprehensive record of faculty scholarship for the last 5 years. In addition to traditional scholarship, include faculty accomplishments that have enhanced the mission and quality of your program (e.g., discipline-related service, awards and recognitions, honors, significant leadership in the discipline, etc.).***

Kurt and Devin are both Certified Welding Instructors through the American Welding Society. This is a certification that needs renewal every 3 years. Norman is currently working on gaining his CWI Endorsement.

Kurt Wenzel

- NSC Lift Truck Operator Training
- FLC HAZCOM Training
- FLC Forklift Train the Trainer Training
- Pferd Safety Seminar
- Center for Work Ethic Development: Bring Your A Game to Work Training
- **FabTech 2017 Chicago**
  - Fundamentals of a Successful Powder Coating Operation Course
  - Lean Principle: Standardize Work the Basis for Lean Course
  - Lean Tools: 5S Workplace Organization and Standardization Course
  - Hybrid Additive Manufacturing: The future of Metal Parts Production Lecture

Devin Wackerla

- Welding Inspection Technology Seminar 2015
- AWS Safety in Welding Program
- AWS Math for Welders Level 1
- AWS Welding Symbols
- AWS Welding Fundamentals Program
- AWS the Science of Non-Destructive Testing Course
- AWS Metallurgy: Fundamentals
- NSC Lift Truck Operator Training
- FLC Forklift Train the Trainer Training
- FLC HAZCOM Training
- Center for Work Ethic Development: Bring Your A Game to Work Training
- Pferd Safety Seminar

Norman Wyatt

- NSC Lift Truck Operator Training
- FLC Forklift Train the Trainer Training
- FLC HAZCOM Training
- Center for Work Ethic Development: Bring Your A Game to Work Training
- Pferd Safety Seminar

B.4 Department Scholarship Analysis

B.4a ***State the goals previously set by your program for scholarship production (previous review). Analyze whether goals were met and the factors that contributed to goal attainment. What changes or modifications are necessary in light of this analysis?***

The following goals previously stated in the 2016 Program Review of the Welding Department:

- Maintain CWI certification for Kurt Wenzel and Devin Wackerla.
  - Goal achieved. Kurt renewed his certification in 2017 and Devin renewed his in 2018. Kurt will maintain his certification and renew again in 2020. Devin will also maintain his certification and renew again in 2021. Staying current with industry trends by attending industry related conferences (FABTech in Chicago) and meetings (KBOR Military Credit for Prior Learning Summit in Topeka) contributed to the successful attainment of this goal. No changes currently needed.
- Send Wyatt for CWI Training and Testing.

- Goal achieved. Norman attended the CWI Seminar and Test in Hutchinson, Kansas in October of 2017. The KANtrain Grant contributed to meeting this goal by providing the funding for the seminar and test. Due to the rigorous nature of the CWI test, Norman did not attain the CWI Endorsement. We are currently exploring ideas on gaining funding to retest in the future. We will discuss the possibility of using Perkins Grant funding to send Norman in 2019.

- Send one faculty member for OSHA Train the Trainer Training.
  - Goal Achieved with Modifications. The Welding Department's goal was to send one person to an OSHA Train the Trainer Course to cover Forklift Training. We achieved this goal in August of 2018. Instead of sending one person to a training out of town, we chose to purchase an Internet based train-the-trainer program through FLC (ForkliftCertification.com) so we can train multiple trainers. FLC is a fully approved OSHA training provider. As of August 13, 2018 Wenzel, Wackerla, and Wyatt are all Certified Forklift Trainers as well as certified in Hazard Communication through FLC.
- Send one faculty member for Certified Radiographic Inspector Training.
  - Goal Not Achieved. Upon further discussion between Welding Department faculty and our Dean of Workforce Development, we decided this certification was not necessary for our program. Radiographic Testing equipment is expensive and dangerous due to the radiation used to develop film during the test. Ultimately, we decided the program could not at this time support the costs of this goal. We will re-evaluate this goal in the future as our program grows on an industry need basis.
- Attend one Industry tradeshow/conference per school year.
  - Goal Achieved. In 2016, Wenzel and Wackerla attended the Essdack Trade Show and Job Fair in Hutchinson, Kansas. Wyatt attended Essdack in 2017, and will attend again in 2018. Over the two years that we attended Essdack, we spoke to a combine 500+ potential students, industry partners and employers. The funds to attend Essdack were provided through the Perkins Grant.
  - Wenzel and White (KANtrain Grant Coordinator) attended the FABTech 2017 Tradeshow in Chicago, Illinois. Wenzel attended multiple trainings related to powder coating, Manufacturing, and the Lean system. The cost to attend this tradeshow was covered by the KANtrain Grant.

B.5 Analysis of Faculty Qualifications

B.5a ***From the evidence available, evaluate the qualifications and contributions of your faculty toward fulfilling the mission of the program. Comment on the composition of your faculty in terms of diversity. Identify gaps in preparation, expertise, or scholarly production that need to be filled.***

The Welding Faculty at GCCC have extensive experience in the Welding Industry and Related fields. Wenzel and Wackerla are both AWS Certified Welding Inspectors and NCCER (National Center for Construction Education and Research) Certified Craft Trainers in Welding, Pipefitting, and Core Curricula. Wenzel, Wackerla, and Wyatt have over 70 years of combined experience in industries such as Power Generation, Petro-Chemical, Pharmaceutical, Sanitary Piping, Cross Country Pipeline, Oilfield repair and service, Millwright, Trailer Manufacturing and Tank Manufacturing. We feel that the combined experience between the three instructors directly contributes to our main goal of training skilled craftsman in the Construction and Manufacturing fields related to welding. The Welding Faculty at GCCC feels it is paramount that instructors have the ability to demonstrate the skills they are teaching. In our program we have that ability.

The Welding Faculty are diverse in areas of expertise. Wenzel and Wackerla have extensive experience in the Industrial Construction Trade, whereas Norman has more experience in Manufacturing and Millwright trades. At the time of this report the Welding Faculty see no gaps in preparation, expertise, and scholarly production that need to be filled.

B.6 Full-Time Faculty Workload

B.6a ***For each of the past 5 years, report full-time faculty workload distribution based on the categories identified below. Include units assigned as overload. (get from your Dean's office).***

Faculty Workload (over past 5 years, ending Academic Year 2017-18)										
Name of Full-Time Faculty	Semester Credit Hours					Administrative and other types of assignments in dept. (e.g., Division Leader, program review, other dept. tasks)				
Academic Year	13-14	14-15	15-16	16-17	17-18	13-14	14-15	15-16	16-17	17-18

Kurt Wenzel	610	797	1371	882	858					
Devin Wackerla	610	797	1371	882	858					
Norman Wyatt	x	x	758	909	888					
Tyler Ramos	x	x	x	x	12					
Edmond Fischer	45	x	x	x	x					

B.6.1 Analysis of Faculty Workload

B.6.1a ***In what ways does faculty workload contribute to or detract from faculty ability to work effectively in the program?***

The Faculty workload has always directly correlated with the success of our students. From 2013 to 2015, we offered a two-year degree, a three-semester certificate, and a one-semester certificate. Kurt and Devin split the workload evenly as each course was team-taught. All involved had the consensus that the workload for each instructor was sufficient yet not overwhelming. In Fall 2015, the Welding Department initiated a fast paced industrial certificate program (18-week Certificate and 1-year AAS). With the inception of this program, we were able to hire an additional instructor (Norman Wyatt) with funding from the KanTrain Grant. From Fall 2015 thru Spring 2017 the welding faculty again split the load evenly. The load for each instructor was sufficient but not overwhelming. Starting in Fall 2017 through present time, the welding department offers a 1-year certificate and a 1.5 year AAS. Kurt and Devin each teach a section of 12 students for each core welding course, Blueprint Reading, and Math for Welders. Norman teaches Welding Safety, Layout and Fabrication, Pipefitting, and multiple sections of Intro to AWS. The courses are split evenly; each instructor works approximately 1 credit hour of over load in the fall and 3 credit hours of overload in the spring. The welding faculty and the Dean of Workforce Development feel that each instructor has a workload that is teachable each semester, every year.

In addition, the welding faculty team-teach several courses. This allows the instructors to be far more effective in welding labs by offering each student the opportunity to see welds demonstrated 3 different ways.

B.7 Percentage of courses taught by each faculty classification

B.7a ***The following table includes the percentage of credit bearing courses taught by program faculty (by classification) during the five most recent years for which data are available.***

Percentage of Courses Taught by Faculty					
Faculty Classification as of November 1	2013-14	2014-15	2015-16	2016-17	2017-18
Full-Time	97.44%	92.59%	96.15%	100%	100%
Part-time	2.56%	7.41%	3.85%	N/A	N/A
TOTAL	100%	100%	100%	100%	100%

B.8 Student Faculty Ratio

B.8a ***The following table includes student to faculty ratios for the 5 most recent years. The ratios provided are based on the number of students enrolled in the program and the faculty assigned to teach in the program. Programs that offer courses in which students from outside the program often enroll (e.g., general studies courses), may wish to include additional data such as the average number of students per course taught by program faculty.***

Student: Faculty Ratio					
Academic Year	2013-14	2014-15	2015-16	2016-17	2017-18
# of Full-Time Faculty	2	2	3	3	3
# of Part-time	1	1	1	0	0
FTE Faculty	2.33	2.33	3.33	3.00	3.00

# of Full-Time Students	14	18	14	32	46
# of Part-Time Students	24	27	47	8	6
FTE Student	22	27	29.67	34.67	48
FTE Student: FTE Faculty Ratio*	9.43:1	11.57:1	8.90:1	11.56:1	16.00:1

*Full-time equivalent (FTE) is calculated using the following formula:
Total # Full-Time Faculty (or Students) + One-third Total # Part-Time Faculty (or Students)

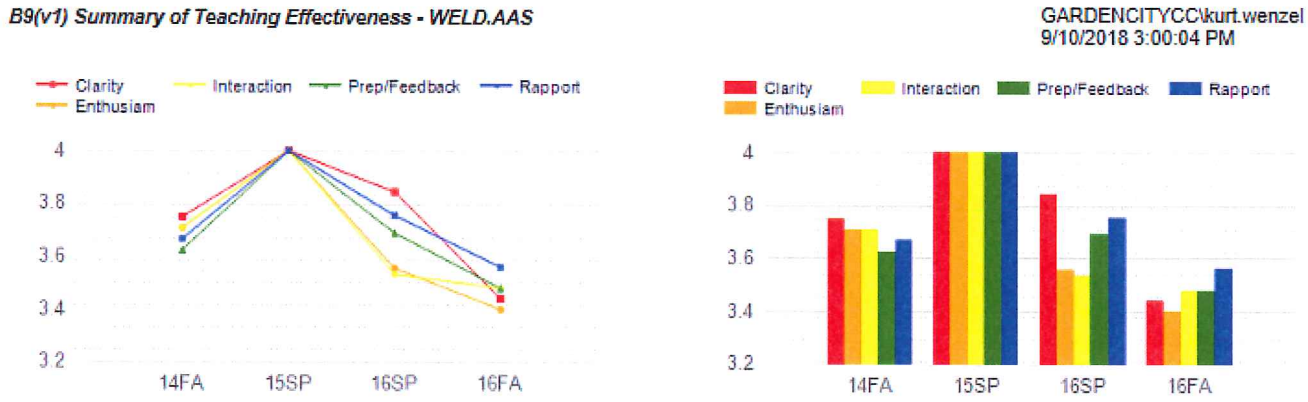
B.8.1 Analysis of Faculty Distribution

B.8.1a *Comment on the adequacy or number of full-time vs. part-time faculty and the ability to deliver quality education.*

Currently, full-time faculty teaches the bulk of our program. This is because the majority of our classes taught in are in the full-time certificate programs. For this reason, it makes perfect sense to have full-time faculty teach non-certificate/non-degree courses at this time. If the welding program begins to see the trend change to more part-time students, we will adjust accordingly.

B.9 Summary of Teaching Effectiveness

B.9a *The following figure includes data derived from student end of course evaluations for the program.*



Crse Included
WELD-106
WELD-110
WELD-120
WELD-212B
WELD-214

95 total responses.

B.10 Other Evidence of Faculty Effectiveness

B.10a *Programs may provide additional evidence (not anecdote) of faculty effectiveness.*

Each year, the GCCC Welding Department does an analysis of the program. We determine failures and successes based on feedback from students and employers, as well as from the number of welding position qualifications awarded. For example, in in Fall 2015, the welding program had 18 students in our 18-week program. Those 18 students earned 89 combined Position Certifications. In Fall 2017/Spring 2018, the welding program had 18 students in our 1-year certificate program. These students earned 146 Position Certifications. These two Program years had essentially the same number of students

taking the same amount of credit hours. The difference being, the 18-week program had less hands-on welding time to perfect their skills. We used this data to validate the hypothesis that more hands-on skill practice results in more hands-on skill.

The Dean of Workforce Development performs faculty observations on a regular basis. At the completion of this observation, the faculty member will sit down and discuss the observation to assure that the faculty member receives the input.

Students perform individual course reviews at the end of every course for each instructor assigned to the course.

B.11 Analysis of Teaching Effectiveness

B.11a ***Using data from the data above, as well as other pieces of available evidence, evaluate the effectiveness of faculty in the classroom. When applicable, include an analysis of faculty effectiveness across delivery system (e.g., outreach locations, online, etc.).***

When considering the effectiveness of any educator, you have to account for many factors. These factors include, clarity of subject matter, preparation, enthusiasm, and in our case the ability to weld and fabricate. According to the graphs above, our lowest number for clarity, enthusiasm, interaction, prep/feedback, and rapport on a 0-4 scale is just above a 3.4, which was for enthusiasm. We can improve this stat by creating more energetic classroom presentations for safety and related material, which is generally monotonous.

Additionally, the ability to weld, fabricate, and inspect are imperative. We feel it is impossible for a student to be extremely successful in learning any hands-on skill if the instructor cannot themselves do the tasks. All instructors in the GCCC Welding Program have extensive experience in welding, fabrication, and inspection. Our professional certifications and the level of experience our students leave with when they graduate demonstrate this.

B.12 Faculty Summary Analysis

B.12a ***Based on evidence and responses provided above, provide a summary analysis of the quality and quantity of faculty associated with the program. Discuss how workload, course distribution, or other considerations impact the ability of the program to deliver excellent teaching to students. Identify resources, mentoring programs, or other services provided or made available by the department to ensure that faculty are developed professionally (this may include release time or funds provided to faculty for curricular and professional development). What changes, if any, should be implemented to ensure faculty effectiveness? Identify any needs related to faculty that impact delivery of a high-quality program.***

As mentioned in B6.1, the faculty workload is adequate for each instructor but not overwhelming. However, in addition to our teaching load, faculty spend many hours per workweek maintaining our facility and performing routine maintenance on our equipment.

Welding Faculty are highly qualified welders, fabricators, and inspectors. We keep our certifications current through professional associations such as the American Welding Society. GCCC provides opportunities for professional development through grants such as Perkins and institutional trainings such as Employee In-Service and other available trainings.

At this time, the welding faculty feels no changes are needed.

Component C - Quality of Curriculum and Student Learning

C.1 Curriculum Structure

C.1a *Provide a brief overview of the course offerings and degree requirements of your program.*

The GCCC Welding Program offers an AAS Degree, a one-year Industrial Welder Certificate C, and a One-semester Manufacturing Welder Certificate A. The following requirements illustrate for each pathway:

Degree

Minimum Credit Hours Required to Graduate = 64

Semester 1		24 hours
Course No.	Course Title	Credit
**WELD-101	Welding Safety	2
**WELD-103	Blueprint Reading for Welders	3
**WELD-106	Math for Welders	3
**WELD-111	Shielded Metal Arc Welding	3
**WELD-122	Gas Metal Arc Welding	3
**WELD-201	Gas Tungsten Arc Welding	3
**WELD-213	Layout and Fabrication	4
**WELD-214	Pipefitting	3

Semester 2		22 hours
Course No.	Course Title	Credit
**WELD-212A	Industrial Welding I	11
**WELD-212B	Industrial Welding II	11

Semester 3		18 hours
Course No.	Course Title	Credit
*	Communications Requirement	6
*	Mathematics Requirement	3
*	Natural & Computer Science Requirement	3
*	Social Science Requirement	3
*	Personal Wellness Requirement	2
*	Student Success Requirement	1

* General Education Requirement (Communications, Math/ Science, Social Sciences, Humanities, Physical Wellness, Student Success)
** Required Program Course
*** Recommended Elective Course

Certificate

Minimum Credit Hours Required for Certificate = 17

Certificate A First Semester		17 hours
Course No.	Course Title	Credit
WELD-101	Welding Safety	2
WELD-103	Blueprint Reading for Welders	3
WELD-106	Math for Welders	3
WELD-111	Shielded Metal Arc Welding	3
WELD-122	Gas Metal Arc Welding	3
WELD-201	Gas Tungsten Arc Welding	3

* General Education Requirement (Communications, Math/ Science, Social Sciences, Humanities, Physical Wellness, Student Success)
** Required Program Course
*** Recommended Elective Course

Minimum Credit Hours Required for Certificate = 46

Certificate C First Semester		24 hours
Course No.	Course Title	Credit
WELD-101	Welding Safety	2
WELD-103	Blueprint Reading for Welders	3
WELD-106	Math for Welders	3
WELD-111	Shielded Metal Arc Welding	3
WELD-122	Gas Metal Arc Welding	3
WELD-201	Gas Tungsten Arc Welding	3
WELD-213	Layout and Fabrication	4
WELD-214	Pipefitting	3

Second Semester		22 hours
Course No.	Course Title	Credit
WELD-212A	Industrial Welding I	11
WELD-212B	Industrial Welding II	11

C.1b *To what degree does the program curriculum align with other comparable programs at other institutions and exemplify best practices for the discipline?*

The GCCC Welding Program is in alignment with Kansas Board of Regents and requires every KBOR sponsored welding program to have the same set of core classes. In welding, these required courses are

- Welding Safety
- Shielded Metal Arc Welding
- Gas Metal Arc Welding
- Gas Tungsten Arc Welding

Outside of the required courses, our program stands above other welding programs in the state. Our program is geared towards the Industrial Trades, which traditionally employs higher skilled and higher wage artisans. We teach our students to the highest standards, we make our students pass welding performance qualifications multiple times, and we grade their test above what is required by the code or standard they are welding to.

C.1c ***Describe the process used by faculty to ensure the program is current and competitive.***

The Welding Program attends industry conferences and tradeshows. We also hold advisory board meetings at the end of each semester to ensure we are teaching what local, regional, and national employer's needs are. In addition, we are constantly searching for innovations to our program. For example, through funding from the KanTrain Grant, we were able to purchase a powder coat spray booth, oven, and blacksmithing equipment. This equipment helps us show students not only to design and fabricate projects, but also to add a professional finish to that project.

C.2 Assessment of Student Learning

C.2a Attach your program's most updated overall Annual Assessment Plans (Appendix C) and Annual Assessment Reports since your last program review (Appendix D).

C.2b Briefly describe the direct and indirect measures your program uses to assess student learning.

The welding program uses written tests, hands-on performance assessments, and code regulated welding performance qualification tests as direct measures for Annual Assessment Plans. We also utilize student evaluations and Course Assessments.

In conjunction, these reports and tests help the faculty see where we have been deficient in past semesters. This allows us to make corrections to curriculum or course layout that will be beneficial to future classes. In addition, these reports detail areas that the welding faculty have flourished.

As for indirect measures, the Welding faculty have used informal surveys to alumni. Looking to the future, the faculty will also administer employer satisfaction surveys. This will allow us to get viewpoints on student success from the employer's perspective.

C.2c ***Analyze how well students are demonstrating <u>each</u> learning outcome within the program. If there is a culminating project in the program, include an objective evaluation of a sample of these products since undertaking the last program review. Use a rubric or other criteria to support your assessment of the culminating projects, and analyze the results of this evaluation. Specify the areas where students are not meeting expected levels of competency and provide an analysis of possible explanations for these results.***

<u>Welding Program Assessment 2018-19</u>

To date, Weld-101 Welding Safety is the only course that we have completed that contributes direct and indirect measures to the Annual Program Assessment. In this course, we chose to evaluate whether students are able to use tools and equipment in a welding shop. We evaluated this measure by assessing how well students performed on the Hand Tools and Power Tools test in Welding Safety. This year, our target was to have 80% of the students enrolled in Welding Safety pass the assessment with 100%. The students outperformed our target. 100% 24/24 students passed this assessment with 100%. It is the belief of the Welding Faculty that we are continually meeting our target in this area. We will re-evaluate this assessment in Fall 21. If the results are similarly above expectations; we will evaluate another test or skill moving forward.

<u>Welding Program Assessment 2017-18</u>

In the 2017-18 academic year, we evaluated 3 program learning outcomes. Two direct measures and 1 indirect measure were evaluated for each outcome.

The first outcome we evaluated in 2017-18 assessed our student's ability to describe and practice welding safety. The direct measures we chose were the Introduction to Safety Written Exam, and the Hazard Communication Written Exam. Our target stated that 100% of students enrolled in Weld-101 Welding Safety would pass the assessments with a score of 100%. In 2017-18, we met those goals. We believe, even though we set very high standards, the welding faculty providing sufficient

information and instruction to our students achieved expectations with a target of 100%. This trend will continue as the welding department requires every student to score 100% on all safety exams before entering the welding shop.

The second outcome we evaluated in 2017-18 assessed our student's ability to interpret welding symbols and demonstrate how to work off of a blueprint. The direct measures we chose were the Pressure Vessel Exam and the Welders Storage Tanks Exam. Our target stated that all students enrolled in Weld-103 Blueprint Reading for Welders would pass the assessments with a score of 85% or higher. Our students surpassed this goal by 95% earning a score of 85% or higher. We had 18 students enrolled in the class, 17 passed with a score greater that 85%. We attribute the success of this goal, not only to thorough instruction, but also to the textbook employ. We use IPT's Guide to Blueprint Interpretation. This text is phenomenal, and it really encapsulates the Industrial and manufacturing industries.

The third outcome we evaluated in 2018-18 assessed our student's ability to weld plate in various positions. The direct measures we chose were a 3G (vertical), and a 4G (overhead) welding performance qualification to ASME Boiler and Pressure Vessel Code Section IX. Our target stated that 80% of students enrolled in Industrial Welding I would be able to pass a 3G and 4G performance qualification. Our students once again, surpassed this goal. 88% (15/17) passed a 3G and 4G welding performance qualification to code. We attribute the success of this goal to students having ample time for welding practice and the instructor's ability to properly demonstrate the successful implementation of the welds at hand.

All of the above goals will be re-evaluated in Fall 20. If the results are similarly above expectations, we will evaluate another test or skill moving forward.

C.3 Curriculum Map of Program Student Learning Outcomes

C.3a Map on following page

AAS (CertC +18 gen ed hours)

WELD.CertC

WELD.CertA

Program: Welding

Curriculum Map

Program Outcomes: Upon completion of the program, graduates will be able to...	Essential Skills	describe and practice welding safety	analyze different welding processes and demonstrate the ability to use them	demonstrate the ability to weld in different plate positions(1F, 2F, 1G)	demonstrate the ability to weld in different pipe positions(1G)	interpret welding symbols and demonstrate the ability to work off of a blueprint	demonstrate proper use of math skills as related to layout, fabrication, and pipefiitting	use tools and equipment found in a welding shop.	describe and practice welding safety	analyze different welding processes and demonstrate the ability to use them	demonstrate the ability to weld in different plate positions(1F, 2F, 1G + 1 additional position)	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G)	interpret pipe and tube data related to pipefitting from a reference book	Communicate Effectively
Courses														
WELD 101 - WELDING SAFETY	234	IRMA	N/A	N/A	N/A	N/A	N/A	N/A	IRMA	N/A	N/A	N/A	N/A	N/A
WELD 103 - BLUEPRINT READING FOR WELDERS	1234	R A	N/A	N/A	I R A	I R M A	I R M A	I R M A	R M A	N/A	N/A	N/A	I	N/A
WELD 106 - MATHEMATICS FOR WELDERS	23	R	N/A	N/A	I R A	R	I R M A	I R M A	R M A	N/A	N/A	N/A	R A	N/A
WELD 111 - SHIELDED METAL ARC WELDING	234	I R A	I A	I R M A	IR	R	IR	I R M A	I R M A	R	I R M A	IR	I R A	N/A
WELD 122 - GAS METAL ARC WELDING	234	I R A	I A	I R M A	IR	R	IR	I R M A	I R M A	R	I R M A	IR	I R A	N/A
WELD 201 - GAS TUNGSTEN ARC WELDING	234	I R A	I A	I R M A	IR	R	IR	I R M A	I R M A	R	I R M A	IR	I R A	N/A
WELD 212A - INDUSTRIAL WELDING I	123	I R M A	I R M A	I R M A	I R M A	I R A	R M	N/A	I R M A	I R M A	I R M A	I R M A	I R A	N/A
WELD 212B - INDUSTRIAL WELDING II	123	I R M A	I R M A	I R M A	I R M A1	I R M A	R M	N/A	I R M A	I R M A	I R M A	I R M A	I R M A	N/A
WELD 213 - LAYOUT AND FABRICATION	1234	I R M A	R	I R M A	I R M A	I R A	R M A	I R M A	I R M A	I R M A	N/A	N/A		N/A
WELD 214 - PIPEFITTING	1234	I R M A	R	I R M A	I R M A	I R A	R M A	I R M A	I R M A	I R M A	N/A	N/A	I R A	N/A
PCDE 101T-CAREER SUCCESS		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	IR
JDAT 111-APPLIED COMMUNIATIO		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	I R M A

Mapping	
I	Introduc
R	Reinforced
M	Mastered
A	Assessed/Artifact

Essential Skills	
1	written communication
2	oral communication
3	critical thinking
4	cultural diversity
5	social responsibility

C.4 Assessment of Curricular Effectiveness

C.4a *Using your program's curriculum map and the evidence collected from the assessment of student learning, outline your program's intended steps for improving student learning. Include any proposed changes to the curriculum that may be necessary.*

The GCCC Welding program has always tried to stay as current as possible in the welding industry. Although, the curriculum design and courses taught are to national standards in the Industrial Trades, we make sure the skills and processes used by local industry are included in our curriculum as well. We achieve this by teaching all three core GMAW (Gas Metal Arc Welding) processes, the FCAW (Flux-Cored Arc Welding) process, the GTAW (Gas Tungsten Arc Welding) process, as well as the SMAW (Shielded Metal Arc Welding) process.
The Welding Program meets collectively with industry partners twice a year at our Welding Advisory Board meetings. At these meetings, the welding faculty present current and past curriculum successes and deficiencies. We seek their advice and guidance to make any changes deemed to be beneficial to student success. Our ability to change and adapt has led to GCCC having what we feel is the best community college welding program in the state.
This is evident by the changes the Welding Department has made over the last three years. In 2015, we offered the 46 credit hour welding program over 3 semesters. We decided to change to an accelerated format. Through student evaluations, employer recommendations, and a shortage of skilled welders, the welding faculty and advisory board decided to adapt an 18-week welding program.

The 18-week industrial Welder Certificate was highly successful. At the time of program offering, we awarded more welding position qualifications than ever before. Unfortunately, our successes were short lived. We discovered that although our students were very successful in the program, the majority of the students could not afford the program due to federal financial aid guidelines. In addition, the Higher Learning Commission deemed the program too overly accelerated.

With this information, the welding faculty, the Dean of Workforce Development, and the welding advisory board decided it would be best to offer a one-year, two-semester program. This program is offered for 46 credit hours, 24 in Fall, and 22 in Spring. The change allowed our students to obtain more financial aid benefits, and the two-semester format is still accelerated but not too short for HLC.

At this time, the welding faculty and advisory board see no need for curriculum changes. This need will be evaluated at the conclusion of each semester.

C.5 Assessment of Diversity in the Curriculum

C.5a Describe and evaluate your program's efforts to create a culture of diversity through the curriculum. In what ways is your program being intentional about embedding diversity-related issues in the curriculum?

The welding program is diverse in many ways. Diversity in student population is quite evident. We continually have students from different states, different countries, and different cultures. For example, the welding program has had students from Texas, Oklahoma, Illinois, Wisconsin, Maine, Florida and Nebraska as well as students from Canada, Haiti, Burma, Ecuador, and Mexico. We have found no diversity related issues in the classroom or shop setting. Using differentiated instruction methods, the welding faculty have great success in being able to reach a majority of students. This allows everyone to have equal opportunities to learn the same material by various means.

C.6 Use of Continuous Assessment for Educational Effectiveness

C.6a *Describe and evaluate the process that your program uses to annually evaluate the quality of curriculum and to assess student learning. Document how your program has used its assessment findings to impact area decisions. In what ways is this process effective toward making effective educational decisions? In what ways should the process change?*

The Welding department uses a variety of assessments to evaluate our courses and program each year. Students fill out course evaluations at the conclusion of each course; this gives us direct feedback from our clientele. If deficiencies are found, the welding faculty draft proposals for change and present them to the Welding Advisory Board. When needed, changes are made to the curriculum, sent to the Curriculum and Instruction committee for approval, and re-evaluated at the next meeting. In addition, we use employer feedback. This is our most effective form of assessment.

Employers tell us if are students are prepared for the workforce and whether our curriculum is meeting their specific needs.

Component D: Student Enrollment and Success

D.1 Student Enrollment

D.1a ***The following table includes fall enrollment data disaggregated by gender and ethnicity for the five most recent years. The ethnicity categories are based on IPEDS requirements. Therefore, International (non-resident alien) students will only be reported in this category regardless of their ethnicity.***

As of Fall Census	2013-14		2014-15		2015-16		2016-17		2017-18		Totals
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	
Non-resident (International)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Asian	0	0	0	0	0	2	0	0	0	0	2
Black, non-Hispanic	0	0	0	0	0	0	0	0	0	8	8
Hispanic	0	18	1	20	2	22	1	27	2	29	122
American Indian or Alaska Native	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Native Hawaiian / Other Pacific Islander	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Two or more races	0	0	0	0	0	0	0	3	0	0	3
Race/ethnicity Unknown	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
White, non-Hispanic	0	10	0	6	0	7	0	17	0	16	56
Totals	0	28	1	26	2	31	1	47	2	53	

D.2 Recruitment and Enrollment

D.2a ***Using the evidence provided, discuss your program's enrollment trends over the past five years, including any trends related to diversity.***

The welding program enrollment trends for the last 5 years are quite evident in graph D.1. We have always had excellent enrollment from the Hispanic/Latino population, as well as good enrollment from the White/Non-Hispanic population. We believe that this is direct result of our local and regional demographics.

D.2b ***What events are happening within the profession, local or broader community that might explain enrollment trends?***

The welding industry is suffering a shortage of skilled workers, which has ultimately led to an uptick in our enrollment. In addition, our program has expanded drastically over the last few years. We were fortunate to receive grant funds in 2015 to expand our welding facility and increase our enrollment. As detailed in graph D.1, our program has nearly double in enrollment the last two years.

D.2c ***What does evidence suggest might be future enrollment trends for your area over the next 3-5 years?***

The shortage of skilled workers will probably continue for many years to come due to the fact that throughout the 1990s and early 2000s students were fed into more professional careers and not into the trades. This leads to an excellent career outlook for tradesmen. We expect our program enrollment to remain filled to capacity for the next 5 years unless we are fortunate enough to expand again.

D.2d ***What, if any, changes to recruitment strategies would benefit the program so that it attracts a sufficient number of students who are a good fit?***

The welding department does not feel any changes are needed in regards to recruiting at this time. In the future, if enrollment trends are still high, we will explore options for adapting an aptitude test to ensure we are getting the best students for our program.

D.3 Student Fit with Program Mission

D.3a ***Using the student data provided, analyze the quality of students typically enrolled in the program.***

A large percentage of students enrolled into the welding program lack the knowledge and skills to read, write, communicate, and solve arithmetic at the college level.

D.3b ***What are the student qualities sought by the program, and to what degree do students and graduates exemplify those qualities?***

We expect that our students achieving an associate's degree will be able to read, write, communicate, and solve mathematical equations at the college level. In addition, we expect them to attain the necessary skills to be an entry-level welder. We feel that our alumni have met these expectations.

D.3c ***What changes, if any, are desired in the type of student enrolled in the program?***

Students who are mechanically inclined progress through our program at a much faster rate than students who are not. We would like to get more students from high school agricultural programs, as they possess the mechanical intuitiveness we desire.

D.4 Student Organizations

D.4a ***Identify and describe any national professional, honorary, other student organizations and/or activities sponsored by the department or faculty members in the program which enrich a student's educational experience.***

Currently, the welding Instructors all belong to the American Welding Society. Devin and Kurt are both Certified Welding Inspectors through AWS. In the future, we will explore offering membership to welding students as well.

D.5 Student Assistance

D.5a ***Describe any special assistance or services provided by the department for your students (e.g., grants, scholarships, assistantships, tutorial help, job placement, advising and career planning, and awards), and in particular any services provided by the department for students with special needs, which facilitate student success.***

The welding program currently offers a $250.00 technical scholarship to every welding student. We also participate in the GCCC Endowment Association Phone-a-thon and fabricate items for the GCCC Endowment Auction to raise money for welding scholarships.

We offer assistance with job placement. Kurt, Devin, and Norman are all well connected throughout the industry and work feverishly to place any student who asks for assistance. The welding department also subscribes to the Industrial Projects Report, this publication features job postings nationwide.

D.6 Student and Alumni Achievement

D.6a ***Since the last program review, how have current students and/or alumni exemplified the mission and purpose of the program? In addition to discussing data produced above, this may include achieving influential positions, engaging in service or practice, acquiring advanced degrees or other significant scholarly accomplishments.***

The KanTrain Grant collected data on alumni success. We found that nearly all students who graduated with a certificate or degree that desired a job in the welding industry found employment.

Our alumni have exemplified the program mission by learning a skill, finding employment with that skill, and becoming a productive member of society.

D.7 GPA Trend Analysis by Ethnicity

D.7a ***Data in the following table reflect the cumulative GPAs of students in the program compared to the overall institution (excluding new students without a GPA), disaggregated by ethnicity, for the five most recent years of fall enrollment. Fall enrollment data is a snapshot of enrollment as of Fall census.***

GPA Trend										
	2013-14		2014-15		2015-16		2016-17		2017-18	
	Average GPA in major/ program	GCCC Avg	Average GPA in major/ program	GCCC Avg	Average GPA in major/ program	GCCC Avg	Average GPA in major/ program	GCCC Avg	Average GPA in major/ program	GCCC Avg
Non-resident (International)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Asian	N/A	N/A	N/A	N/A	2.500	3.021	N/A	N/A	N/A	N/A
Black, non-Hispanic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.899	2.403
Hispanic	2.829	2.758	2.401	2.743	2.766	2.816	2.616	2.782	2.906	2.840
American Indian or Alaska Native	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Native Hawaiian / Other Pacific Islander	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Two or more races	N/A	N/A	N/A	N/A	N/A	N/A	2.514	3.111	N/A	N/A
Race/ethnicity Unknown	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
White, non-Hispanic	2.720	3.126	3.120	3.075	2.790	3.177	3.262	3.192	3.111	3.148
Female	N/A	N/A	1.400	2.972	3.310	3.064	3.537	3.064	3.00	3.039
Male	2.790	2.852	2.605	2.801	2.719	2.862	2.823	2.821	2.812	2.788

D.8 Completions Analysis by Ethnicity

D.8a The completions table includes program completers disaggregated by gender and ethnicity for the five most recent completion cycles. A completion cycle includes graduates from the program between July 1st and June 30th of each year. The ethnicity categories are based on IPEDS requirements. Therefore, International (non-resident alien) students will only be reported in this category regardless of their ethnicity.

Student Diversity—Completions										
	2013-14		2014-15		2015-16		2016-17		2017-18	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Non-resident (International)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Asian	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Black, non-Hispanic	0	0	0	0	0	0	0	0	0	1
Hispanic	0	6	0	5	2	20	1	19	0	14
American Indian or Alaska Native	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Native Hawaiian / Other Pacific Islander	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Two or more races	0	0	0	0	0	0	0	3	0	0
Race/ethnicity Unknown	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
White, non-Hispanic	0	2	0	2	0	11	0	11	0	14

*Data are based on past federal IPEDS reports. Whenever possible, programs should rely on the official IPEDS data. Given past variations in data collection report dates (e.g., inclusion of summer graduations), however, programs may supplement and elaborate on this exhibit with data they have kept internally.

D.9 Evidence of Successful Completion

D.9a-c ***The following tables provide year-to-year retention rates, graduation rates, and time-to-degree rates for the five most recent year's data. Retention and graduation rate tables include individual year counts and percentages as well as five-year averages of counts and percentages. The time-to-degree table includes the number of completers within the completion cycle and the median time to completion in years. A completion cycle includes graduates from the program between July 1st and June 30th of each year. Programs may provide other sources of data or evidence to demonstrate student success; please specify timeframes used in this analysis.***

D-9a Retention Rates

One-year retention rates (Fall to Fall)												
5-year average		Fall 2013		Fall 2014		Fall 2015		Fall 2016		Fall 2017	
# in Cohort	% retained	# in Cohort	% retained	# in Cohort	% retained	# in Cohort	% retained	# in Cohort	% retained	# in Cohort	% retained
191	71.73	28	67.86	27	66.67	33	60.61	48	70.83	191	71.73

D-9b Graduation Rate (150% of time)

Program 3-year graduation rates	
5-year total	Entering cohorts Fall semester

			2011		2012		2013		2014		2015	
% Graduated	# in cohort	# Graduated	% graduated	# in cohort	% graduated	# in cohort	% graduated	# in cohort	% graduated	# in cohort	% graduated	# in cohort
34.04	141	48	14.29	21	28.13	32	28.57	28	29.63	27	60.60	33

D-9c Average semester credit hours for program graduates

Program Average Semester Credit Hours at Graduation													
Academic Year Graduates – Average Institutional and Transfer In Hours													
2013			2014			2015			2016			2017	
# Grad	Avg Inst SCH	Avg Tsf SCH	# Grad	Avg Inst SCH	Avg Tsf SCH	# Grad	Avg Inst SCH	Avg Tsf SCH	# Grad	Avg Inst SCH	Avg Tsf SCH	# Grad	Avg Inst SCH	Avg Tsf SCH
8	65.88	0	7	67.86	7.29	33	73.03	0.55	34	60.76	1.41	29	62.17	6.48

D-9d Program Graduates Time to Degree

Time to degree (Exiting cohort) (July 1 – June 30)									
2013-14		2014-15		2015-16		2016-17		2017-18	
Median Time (years)	# Graduated	Median Time	# Graduated	Median Time	# Graduated	Median Time	# Graduated	Median Time	# Graduated
2	8	4	7	.5	33	2	34	2	29

Note: The time to degree cohorts are established at the time of graduation and are based on the students that graduated from the program within the year specified.

D.10 Retention and Student Success Analysis: ***Summarize and evaluate the effectiveness of the program's recruitment and retention efforts as it relates to enrolling and graduating students who fit the mission of the program. Identify any areas in need of improvement for producing successful students. In the analysis, address the following elements:***

D.10a ***What does the evidence from above data suggest regarding how well your program is producing successful students?***

The data shown provides evidence to the fact that we have changed the duration and content of our program multiple times over the last 5 years. In 2013 we enrolled 8 students and 8 graduated. In 2015 we enrolled 33 and 33 graduated, and in 2017 we enrolled 34 and graduated 34. I believe the data shows that we had lower enrollment and less total graduates early in the program's history. The data also shows that as the years have gone by, as our enrollment increases, so do our graduation numbers. This also shows good growth of our program.

D.10b ***List specific events/activities that the program uses to increase student retention and degree completion.***

Accuplacer testing at the time of enrollment assists advisors in ensuring students are placed in the appropriate class sections for their skill level. As a department, we strive to have a close, functional relationship with each student in the program. We meet with students individually at least once a semester to discuss their progress. We make sure students are comfortable enough with instructors to talk about issues if they arise. This close relationship bodes well for retention and completion rates. Students are more likely to finish if they are comfortable in the program.

D.10c ***Provide your best practices for tracking students who leave the program (without completing) and any follow up you may do with these students to determine why they have left.***

Currently, we do not have a tool for tracking students who have left the program. If we have a student that needs to leave the program, we try to have an exit meeting before they do. The intent of this exit interview is to see if we can assist the student in any way going forward, and if they desire, we discuss the possibility of re-entry to the program.

D.10d ***Identify any areas in need of improvement for producing successful students.***

A selective enrollment process would help bring in a higher quality of student, which would produce a better-rounded student and increase graduation and retention rates.

Component E: Academic Opportunities and Class Size

E.1 Instruction Type

E.1a ***The following table includes the number of students enrolled by instruction types available through your department/program. Please add any additional data as applicable.***

Special Study Option	Number of Students Who Participated/Number of SCH Generated for each Study Option Offered by the Program									
	Academic Year 2013-14		Academic Year 2014-15		Academic Year 2015-16		Academic Year 2016-17		Academic Year 2017-18	
	# of students	Total SCH	# of students	Total SCH	# of students	Total SCH	# of students	Total SCH	# of students	Total SCH
Outreach program (aggregate)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A56
Concurrent Enrollment (Outreach-HS)	N/A	N/A	56	168	31	93	N/A	N/A	N/A	N/A
Dual Credit Enrollment (Outreach-HS)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4	12
On-line courses-GCCC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
On-line courses-EDUKAN	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
On-line courses-Contract	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Face to Face courses	189	571	225	713	307	1471	196	909	209	888
Internships/practica	9	27	10	60	N/A	N/A	N/A	N/A	N/A	N/A
Independent study, tutorials, or private instruction	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Developmental courses	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

E.2 Class Size Analysis

E.2a ***Based on the definitions provided below, the following table includes student counts in each class-size category for the past 5 years. Data are reported for the number of class sections and class subsections offered in each class size category. For example, a lecture class with 100 students which also met at other times in 5 separate labs with 20 students each lab is counted once in the "100+" column in the Class Sections column <u>and</u> 5 times under the "20-29" column in the Class Subsections table***

Class Sections: *A class section is an organized course offered for credit, identified by discipline and number, meeting at a stated time or times in a classroom or similar setting, and not a subsection such as a laboratory or discussion session. Class sections are defined as any sections in which at least one degree-seeking student is enrolled for credit. The following class sections are excluded: distance learning classes and noncredit classes and individual instruction such as dissertation or thesis research, music instruction, independent studies, internships, tutoring sessions, practica, etc. Each class section is counted only once.*

Class Subsections: *A class subsection includes any subdivision of a course, such as laboratory, recitation, discussion, etc.; subsections that are supplementary in nature and are scheduled to meet separately from the lecture portion of the*

course. Subsections are defined further as any subdivision of courses in which degree-seeking students are enrolled for credit. The following class subsections are excluded: noncredit classes as well as individual instruction such as, music instruction, or one-to-one readings. Each class subsection is counted only once.

Class Size per Academic Year								
	9 or less	10-19	20-29	30-39	40-49	50-99	100+	Totals
2013-14 Class Sections	8	12	0	0	0	0	0	20
2013-14 Class Sub-Sections	0	0	0	0	0	0	0	0
2014-15 Class Sections	12	13	0	0	0	0	0	25
2014-15 Class Sub-Sections	1	3	0	0	0	0	0	4
2015-16 Class Sections	1	21	0	0	0	0	0	22
2015-16 Class Sub-Sections	0	2	0	0	0	0	0	2
2016-17 Class Sections	7	13	0	0	0	0	0	20
2016-17 Class Sub-Sections	0	0	0	0	0	0	0	0
2017-18 Class Sections	2	9	2	0	0	0	0	13
2017-18 Class Sub-Sections	1	0	0	0	0	0	0	1
Totals Across 5 Years	32	73	2	0	0	0	0	107

E.3 Non-credit Courses

E3a ***If your department offered non-credit courses during the past 5 academic years, please use the chart below to list the course(s) and the number of students who completed the course.***

Non-credit Courses					
Academic Year	2013-14	2014-15	2015-16	2016-17	2017-18
Course	# of students completing	# of students completing	# of students completing	# of students completing	# of students completing
CE1617	N/A	N/A	N/A	10	N/A

E.4 Academic Opportunities and Class Size Analysis

E.4a ***Using the evidence provided in all exhibits above, discuss the trends in the program's class sizes and, if relevant, the impact on student learning and program effectiveness. Note, in particular, downward or upward trends in class size and provide justification for those trends. When possible, identify the impact of special study options and individualized instruction on program quality. Make certain you address, if appropriate, all off-campus and on-line courses and/or programs.***

At this time, we do not have enough data to make any assessments for non-credit courses. The Dean of Workforce Development is currently working on some non-credit opportunities for summer 19 and beyond. We will assess in the next program review.

Component F - Student and Constituent Feedback

F.1 Student Feedback

F.1a ***Summarize available findings that relate to program quality from student surveys, focus groups, exit interviews or other student sources. Include their perceptions of how well the program met their needs, the program's strengths and weaknesses, and suggestions for improving the program.***

After review of the student course evaluations from Fall 17 and Spring 18, we found that our students have very favorable viewpoints on how well our program met their needs. One of the most common responses we received was instructors were very knowledgeable and taught the course well. The most common response for program strengths was the instruction. The most common responses for weakness were nothing, build a bigger facility, get air conditioning for the shop, and better lighting.

We are encouraged by the reviews in many ways. First, we know that we are meeting our student's expectations in the classroom. Second, we know that we are meeting our student's expectations in the shop. Finally, we learned that our weaknesses are minor in relation to our field. When students leave our classes and enter the industry, they will not have air conditioning. They will not always have light. We would love to have a bigger shop and have air-conditioning to make our students more comfortable while they learn. However, we feel that the cost to air condition the shop would be astronomical and therefore not feasible at this time.

F.1b ***Describe the ongoing mechanisms that are in place to acquire and utilize student feedback regarding program quality.***

At this time, we encourage our students to fill out course evaluations at the conclusion of each course. We utilize this information when we complete our course assessments and program assessments. If deficiencies are discovered, proposals are brought to the advisory board. When the advisory board approves changes, the proposals are sent to the Curriculum and Instruction Committee for final approval.

F.1c ***What changes need to be made to meaningfully incorporate students into the program review process?***

We believe that it would be helpful to have program specific reviews. We understand this will not be necessary across all of campus. It would benefit us greatly to have the reviews done not only for each individual course, but also for the program as a whole. This allows us to complete a true macro-evaluation versus piecing together many micro-evaluations.

F.2 Alumni Feedback

F.2a ***Summarize the results from available alumni surveys, focus groups, or advisory committees as it relates to program quality. When possible, include data indicating how well the program met the alums' goals and expectations, how well they think the program prepared them for next steps professionally and academically, and any program changes they recommend.***

The welding department generally does informal surveys to former students on site visits. We have had many compliments on the quality of our program, as well as compliments on the quality of employees we are producing. At this time, we do not have enough data to make a true evaluation. In the future, we will send out paper surveys with return service. This will allow us to evaluate and document our progress.

F.3 Employer/Supervisor Feedback

F.3a ***Summarize the results from available surveys, job performance appraisals, intern or clinical supervisor evaluations, or other relevant data as it relates to student preparation or competence or program quality. Comment on the level of preparation given to students as a result of the program.***

The welding department generally does informal surveys at advisory meetings and at on-site visits. We have had many compliments on the quality of our program; as well as compliments on the quality of employees we are producing. We enjoy many compliments on how well prepared our students are in their industry skills. However, the welding program along with many others does have a hard time teaching soft skills, especially attendance. To try to correct this, we have implemented a

time clock into our program, all of our employers and industry partners have praised this change. At this time, we do not have enough data to make a true evaluation. In the future, we will send out paper surveys with return service. This will allow us to evaluate and document our progress.

F.4 Constituent Feedback Analysis

F.4a ***Analyze the program's overall effectiveness at utilizing student, alumni, and supervisor feedback as part of the assessment process. How well does the program solicit and respond to feedback, as well as communicate results of program review to its constituents, especially its current students?***

It is our belief that we do an outstanding job at using all available data to make our program better for students, instructors, and employers. We believe we solicit data and respond to feedback very well. We are always open to constructive criticism. We do fall short in communicating program review results to our current students. When this review is complete and approved by the Board of Trustees, we will make this report available to our students for review.

Component G - Resources and Institutional Capacities

G.1 Information Literacy and Library Resources

G.1a ***Information literacy can be understood as the ability to "recognize when information is needed and…to locate, evaluate, and use effectively the needed information" (from the Association of College and Research Libraries). Describe the degree to which library and information resources are adequate and available for students and faculty members in your department (onsite and remotely). What level of support and instruction is available to students and faculty in the areas of technology and information literacy? Provide examples of how students are meeting information literacy competencies and discuss the level of competency exhibited by students in the program. What resources are needed for your program in this area?***

Students in the welding program enroll in a College Success course or a Career Success Course when seeking an associate degree. This allows them the opportunity to learn where and how to gather information, ensuring that students have full access to the resources they need through their time at GCCC. We have a high level of adequate and available library and information resources provided for both faculty and students. Our library has plentiful resources available onsite, as well as many remote resources. Faculty and students can utilize the resources provided through the many available research databases available in the library's website. Faculty and students can also checkout resources though the interlibrary loan system at our library's campus.

G.2 Resource Analysis

G.2a ***Discuss the process used by program faculty to secure needed resources for the program. Include innovative strategies that have resulted in successful resource acquisition.***

The Welding Department secures resources from student course fees, and soliciting donations from industry partners such as Palmer Mfg. and Tank (Carbon steel plate), Accurate Construction (Stainless Steel Plate/Pipe), Black Hills Energy (Carbon Steel Pipe), Airgas (consumables), and Scott and Associates (Carbon Steel Pipe). The strategies that we use to be effective at gaining donations are simple. The welding faculty maintains frequent contact with our industry partners and our advisory board. We work together with our industry partners to advance our respective causes. For Example, Kurt and Devin have done critical GTAW welds for Palmer Mfg. and Tank when they did not have the workforce to complete the welds. Palmer Tank has donated a considerable amount of material and pipefittings over the year and the welding faculty will continue to grow that relationship by being a good partner.

G.2b ***Evaluate the program's effectiveness at securing necessary resources to ensure program quality.***

The Welding program has been extremely effective at securing resources. We have set our course fees to be competitive with other schools while ensuring we have the resources from said fees to provide the best welding training in the state. In addition, we have solicited donations from industry partners that have helped us maintain a low material cost.

G.2c ***What systems or processes are working well, and what improvements could be made to make non-budgeted resource acquisition successful?***

Our partnerships with industry are working really well. We have a continued partnership with Tyson Foods and with Palmer Manufacturing and Tank. These partnerships provide valuable resources to our program and our students. We would like to expand our partnerships to include Seaboard Foods and Kanamak Hydraulics. We feel that by strengthening our bonds with these partners, we can expand opportunities for students after graduation.

G.3 Revenue and Expense Analysis

G.3a *Insert program data from at least five academic years.* ***Obtain this information from your Dean.***

Academic Year	Revenue: Tuition/Fees, SCH, State	change from prior year	Expenses	change from prior year	Profit/Loss	Change in P/L from prior year
2013-2014	$ 97,077.52	n/a	$ 178,816.26	n/a	$ (81,738.74)	n/a
2014-2015	$ 150,491.70	55.02%	$ 185,228.99	3.59%	$ (34,737.29)	-57.50%
2015-2016	$ 270,034.25	79.43%	$ 238,802.05	28.92%	$ 31,232.20	-189.91%
2016-2017	$ 168,710.01	-37.52%	$ 205,051.20	-14.13%	$ (36,341.19)	-216.36%
2017-2018	$ 177,149.81	5.00%	$ 228,933.50	11.65%	$ (51,783.69)	42.49%

G.4 Analysis of Acquired Resources

G.4a ***Since the last program review, identify each major program resource acquisition and its direct or indirect impact on program growth or improved quality. Discussions of impact should include the measureable effect of acquisitions such as new faculty, staff, equipment, designated classroom/office space, non-budgeted monies, awarded grants, scholarships, and other acquisitions by the program or faculty on student learning, enrollment, retention, revenue or other program indicators of educational effectiveness.***

Since our last program review, we were awarded the KanTrain Grant. This allowed us to purchase a plethora of new equipment, purchase consumables for our students to use, and purchase program supplies that we otherwise would not have been able to purchase. The grant purchases are as follows:

Facilities

- Renovation of Skating rink building at 1802 spruce
- Oxygen and Acetylene Manifold System
- 24 Welding Booths
- Office Furniture
- Classroom Furniture
- Classroom Computers
- Office Computers

Equipment

- 3/8" Ton Betenbender Shear
- 95 Ton Betenbender Brake
- Hornet Systems CNC Plasma Table
- Ellis Band saw
- 2 80 Gallon Screw Compressors
- Ercolina Tubing Bender
- 24 Lincoln Electric DC-400 Welding Machines
- 4 Lincoln Electric Precision Tig 375
- 4 Lincoln Electric Engine Drive Welders

Faculty

- Norman Wyatt

All of the above mentioned purchases have greatly contributed to the success of our program. By purchasing the equipment,

we have increased our enrollment, expanded our curriculum, and produced better students.

G.4b ***Justify the program's use of resources through this analysis. When appropriate, discuss resource acquisitions that did not positively impact the program.***

We believe the acquisitions are justified by the number of graduates we can produce. Before we were awarded the KanTrain Grant, we could only enroll 12 full-time welding students per year. Our capacity is now at 24 full-time students per year. We are running at full capacity, and we project will continue this trend for years to come. Since we are now at full capacity in our full time program, we are going to pursue resources to expand our part time offerings such as, our partnerships with Tyson Fresh Meats and Seaboard foods.

G.5 Resource Allocation Relative to Capacity

G.5a ***Analyze trends in the program's operational budget as it relates to program enrollment, emerging needs, and program goals.***

Our operational budget is directly tied to our enrollment numbers. If we bring in a larger number of students, we have a larger budget. This is due to our welding program course fees. These fees are used for material and consumables that we need to hold class.

G.5b Has the budget increased or decreased in proportionate response to program growth?

Our budget has increased with the growth of our program. As our student enrollment climbs, we naturally will get more funding. In addition, our course fees have increased over the last few years due to higher enrollment numbers. The more students we enroll, the more money it cost to operate our facility.

G.5c ***Using evidence obtained from this review and other data, discuss your program's enrollment trends and/or revenue streams as it relates to non-budgetary resource allocation. In other words, if the program has reduced enrollment or income, what steps have been taken to correct resource allocations or expenses; if the program has increased in size or income, what resources or capacities are needed to meet new demand?***

The welding program has seen an increase in enrollment since we received the KanTrain Grant. Most of the increased cost of expanding our enrollment was offset by the grant, the remainder by donations from industry partners and through increase in course fees.

G.5d ***What is the impact of budget changes on educational effectiveness? For each necessary capacity, rank order its importance relative to other needs and estimate its cost. Describe planned efforts to obtain funding for these needed capacities.***

The impact on educational effectiveness is self-evident. The bigger the budget, the more our students can learn through our projects and ability to demonstrate skill.

Summary Conclusions

Summarize the major findings of the program review as it relates to both the strengths of the program and areas in need of improvement. Include in this discussion any "intangibles" or assessments that you wish to discuss that were not requested in the Program Review Report. Make sure your conclusions are based on evidence.

The Welding Technologies Program is functioning at a very high level. We are operating at or near capacity with sufficient funding and resources. Our program is systematic in certificate and degree composition. Our students earn Certificate A, Certificate C, and finally an Associates in Applied Science, each building on the former.

The course offerings are methodical. Welding Safety, Blueprint Reading for Welders, Mathematics for Welders, Shielded Metal Arc Welding, Gas Metal Arc Welding, and Gas Tungsten Arc Welding are the core courses. Welding Safety lays the foundation and each subsequent course is a building block to the next, culminating with Industrial Welding I and Industrial Welding II.

Over the past five years, the welding department has shown our ability to change and maintain growth. We have changed our program many times over the last five years and, with each change, we have shown growth. We feel that our instructor to student ratio is a key component to our success as it allows us to teach more than one discipline at a time. The welding faculty do feel the need to expand in technology; we are exploring the option of Hybrid courses to accommodate technical advancements of today's youth.

In addition, the welding faculty perennially earn excellent student course evaluations. We believe our students ability to earn industry recognized credentials directly contributes to this. Our graduates consistently inform us as to how well prepared they were upon entering the welding field which exposes our main weakness. In the past, we have not had a formal survey for graduates or employers that would effectively document our successes in this area. As stated in section C.2a we will create a formal survey to send to employers and graduates to document our successes and evaluate deficiencies.

In conclusion, the welding faculty have a vast array of knowledge in all disciplines taught, as well as the ability to demonstrate each credential. Instructor prowess is evident by the many certifications and qualifications that each instructor holds. We feel that we have an outstanding program with the potential to grow. If we continue to have strong recruiting, a sufficient budget, and the will to expand our knowledge and course offerings, we will flourish.

Program Goals with Recommended Action Steps

Component Area	Specific Goal or Desired Outcome to Maintain or Improve Program Program Quality.	Activity or Strategies to Achieve Goal (include responsible person)	Proposed start and end dates	Progress Metrics and timeframe for measurement	Resource requirement (in-kind & direct)	Priority of Resource Allocation (High, Medium, Low.)	Anticipated Impact on Educational Effectiveness & relation to GCCC Skills
A - Mission and Context	Maintain current program quality, while strengthening our standards	The welding faculty will update curriculum to meet the rigor that constantly changes in the welding industry	Continuous	Student progress and Graduation rates	N/A	High	Maintaining the high level of quality will produce excellent students and good employees
B - Faculty Characteristics and Qualifications	Continue Education	Norman-CWI Kurt-SCWI Devin-CRI	Norman-SU19 Kurt-SU20 Devin-SU20	Passing Required Testing	Cost of seminars and Tests	Medium	Providing more knowledge and expertise will expand student knowledge and expertise
C - Quality of Curriculum and Student Learning	Change textbooks for certain classes	Change to Cengage book for Blueprint Reading	Fall 2019	Student progress and knowledge retention	None	Medium	Student learning should increase
D - Student Enrollment and Success	Working on implementing an aptitude test prior to program entry	Work with advisory board and employee to design an entrance exam	Fall 2019	Higher reading, writing and math skills with accuplacer.	None	Medium	Will only allow a higher quality of student into the program
E - Academic Opportunities and Class Size	Size is Correct for our current facility. Will maintain	N/A	N/A	N/A	N/A	N/A	N/A
F - Student and Constituent Feedback	Build a questionnaire for graduates	Instructors will send out email and maintain connection with graduates	Fall 2019	Follow each graduating class and keep track of information	Questionaire that can be emailed	High	Have feedback from former students and businesses that hired them.
G - Resources and Institutional Capacities	Acquire fittings and donations to construct Pipe Lab in the Annex	Expand relationships with local and regional companies to earn donations	Fall 2019	Pipe Lab completion	Financial backing from several different locations, GCCC, Palmer Tank, Sunflower Electric, etc.	High	Will help attract more students to the program and have a much better learning environment
Summary Conclusions	Acquiring a more updated and larger shop and classrooms is necessary before increasing the class size. Current facilities are sufficient for current class size, but a pipe lab would increase interest in program.	Create a better connection with and following of graduates and employers	Continuous	Create documents to be able to track and monitor current and graduated students.	Most program growth can be accomplished with little to no financial burden.	N/A	Working on ensuring that students have the highest quality of education is of top priority.

Appendix A

Program Goals with Recommended Action Steps—From Previous Review

Attach this document with your Program Review Report for Section A.2 above.

Goals 2015-16						
Goals 2015-16		**Division:**		**Department:**		
GCCC Strategic Priority		**Goal/Outcome (Not Operational)**		**Measurable Objective**	**Antic. Compl. Date**	**Accomp-lishment Date**
Helping Students Learn	1	Develop, outfit a Pipe Lab for Pipefitting Training	1.1	Design Core Components of Pipe Lab	Feb.-16	
			1.2	Purchase additional fittings, valves etc. for pipe lab	Mar.-16	
			1.3	Install Core Components of Pipe Lab	Apr.-16	
			1.4	Administer Training on Pipe Lab	May.-16	
	2	Revamp, Train, and Fabricate Tool Box For Students in Layout and Fabrication	2.1	Revamp Layout and Fabrication Final Project to include more Time Management	Jan.16	
			2.2	Train students on Design of Toolbox	May.-16	
			2.3	Train Students to use CNC Plasma Machine for use on the Toolbox	May.-16	
			2.4	Train Students to use Shear and Brake for use on the Toolbox	May.-16	
			2.5	Have Students Demonstrate skills learned by building Toolbox	May.-16	
	3	Maximize Enrollment	3.1	Visit local industries to develop partnerships and to identify the needs of industry	Jan.16	
			3.2	Visit and recruit from local high schools to maximize enrolment and meet the needs of industry	Spring 16	
			3.3	Develop Seminar courses	Spring 16	

Leading & Communicating	1	Develop an apprenticiship and summer work program with local industries.	1.1	Track student employment history.	Spring 16	
			1.2	Track Employer Satisfaction in GCCC Student Performance.	Spring 16	
	2	Develop new GCCC Training Programs	2.1	Hire one adjunct instructor.		
	3	Fuel Community involvment in GCCC Programs and Higher Education.	3.1	Implement an Adult Education Class on Welding for the Non-welder.	Spring 16	
			3.2	Investigate the community wants and needs to develop new ideas for Continueing Education Classes.	Spring 16	
	4	Students continueing their education in the Industrial Technologies Field after GCCC	4.1	Track student success stories.	Spring 16	
	5	Keep pace with Industry	5.1	Attend American Welding Society FabTec show	Spring 16	
	5	Send Norman for CWI/CWE Certification	6.1	Attend training and take test to complete	Summer 16	
Planning Continuous Improvement	1	Update Courses using reccomendations of the GCCC Welding Advisory Board	1.1	Incorporate OSHA Forklift Training into Welding Safety Class	Spring 16	
			1.2	Revamp Layout and Fabrication Final Project to include more Time Management	Spring 16	
	2	Offer More Night Classes	2.1	Talk with Local business and industry to discover needs for	Spring 16	

ACTION PLAN 2015-16 Goals

a. Develop and Implement a Comprehensive Development Education Program
    i. The welding program is working with GCCC ABE Program on incorporating A-OK into the welding program.
b. Increase on-line course offerings by 25%
    i. The welding program currently has no intention of teaching online courses
c. Increase Credit Hour Enrollment
    i. The welding program moved into a new facility with the capability to accommodate 48 18-Week or WELD.AAS students per year. Previously we were limited to 12 students per year.
d. Complete a Comprehensive Plan for Deferred Maintenance and Technology
    i. The welding program handles all maintenance of equipment internally and will help IT in any way necessary.
e. Secure Additional External Resources
    i. The welding program has added new advisory board members and plans to add two more by May 2016.
    ii. The welding program has received donations from:
        1. Worthington Industries
        2. Black Hills Energy
        3. Southern Star Gas Pipeline
        4. Accurate Construction
        5. Specialty Welding Inc.
f. Expand baccalaureate opportunities for GCCC Graduates

Appendix B

Administrative Response Sheet—From Previous Review

Attach this document with your Program Review Report for Section A.2 above.

Appendix C

Annual Assessment Reports—Since Last Program Review

Annual Program Assessment 2018-19

Program:	Welding AAS
Program Mission Statement:	The mission of the Welding Technologies Program at Garden City Community College is to train skilled craftsman in the construction and manufacturing fields related to welding. To provide students with not only welding skills but a positive attitude and a good work ethic.
Year:	Fall 2018 to Spring 19
Instructors:	Kurt Wenzel, Devin Wackerla, Norman Wyatt

Phase 1: Beginning of Semester	**Program Learning Outcome:**	**Graduates will be able to Demonstrate the ability to weld in different pipe positions(1G, 2G, 5G, 6G)**
	Direct Measure #1:	AWS AND ASME PERFORMANCE QUALIFICATION TESTS 2G
	Target:	50% of students enrolled in Industrial Welding II will earn a 2G Position Qualification
	Sampling:	100% of students enrolled in Industrial Welding II
Phase 2: End of Semester	**Data/Results:**	
	Data Summary/Analysis:	(Artifacts in Appendix A)
	Action Plan (if needed):	
	Responsible Party:	
	Completion Date:	
	Resources Needed:	
Phase 1: Beginning of Semester	**Direct Measure #2:**	AWS AND ASME PERFORMANCE QUALIFICATION TESTS 5G
	Target:	50% of students enrolled in Industrial Welding II will earn a 5G Position Qualification
	Sampling:	100% of students enrolled in Industrial Welding II
Phase 2: End of Semester	**Data/Results:**	
	Data Summary/Analysis:	(Artifacts in Appendix B)
	Action Plan (if needed):	
	Responsible Party:	
	Completion Date:	
	Resources Needed:	
Phase 1: Beginning of Semester	**Indirect Measure:**	Informal Alumni Survey
	Target:	50% of students will report that they felt competent in their 2G and 5G welding ability
	Sampling:	2-5 Past students that completed the welding program
Phase 2: End of Semester	**Data/Results:**	
	Data Summary/Analysis:	
	Action Plan (if needed):	
	Responsible Party:	
	Completion Date:	
	Resources Needed:	
	Overall Assessment of PLO:	

Phase 1: Beginni	**Program Learning Outcome:**	**Graduates will be able to demonstrate the proper use of math skills as related to layout, fabrication, and pipefitting**

	Direct Measure #1:	Toolbox project in Weld-213
	Target:	75% of students enrolled in Weld-213 will complete their toolbox project in the suggested timeframe
	Sampling:	100% of students enrolled in Weld-213
Phase 2: End of Semester	**Data/Results:**	
	Data Summary/Analysis:	(Artifacts in Appendix C)
	Action Plan (if needed):	
	Responsible Party:	
	Completion Date:	
	Resources Needed:	
Phase 1: Beginning of Semester	**Direct Measure #2:**	Weld-214 Pipefitting Final
	Target:	75% of students enrolled in Pipefitting will score 85% on the Pipefitting Final
	Sampling:	100% of students enrolled in Pipefitting
Phase 2: End of Semester	**Data/Results:**	
	Data Summary/Analysis:	(Artifacts in Appendix E)
	Action Plan (if needed):	
	Responsible Party:	
	Completion Date:	
	Resources Needed:	
Phase 1: Beginning of Semester	**Indirect Measure:**	Informal Alumni Survey
	Target:	100% of students will report that they felt confident in their ability to read a blueprint, cut pieces, and fit a weldment
	Sampling:	2-5 Past students that completed the welding program
Phase 2: End of Semester	**Data/Results:**	
	Data Summary/Analysis:	
	Action Plan (if needed):	
	Responsible Party:	
	Completion Date:	
	Resources Needed:	
	Overall Assessment of PLO:	

Phase 1: Beginning of Semester	**Program Learning Outcome:**	**Graduates will be able to use tools and equipment in a welding shop**
	Direct Measure #1:	Hand tools and Power tools test in Welding Safety

	Target:	80% of students enrolled in Welding safety will be able to pass the written test with 100%
	Sampling:	100% of students enrolled in Welding Safety
Phase 2: End of Semester	**Data/Results:**	24/24 100%
	Data Summary/Analysis:	Target Was Met (Artifacts in Appendix D)
	Action Plan (if needed):	
	Responsible Party:	
	Completion Date:	
	Resources Needed:	
Phase 1: Beginning of Semester	**Direct Measure #2:**	Toolbox project in Weld-213
	Target:	75% of students enrolled in Layout and Fab will be able to pass the fit-up portion of the grading rubric with 80% or higher
	Sampling:	100% of students enrolled in Weld-213
Phase 2: End of Semester	**Data/Results:**	
	Data Summary/Analysis:	(Artifacts in Appendix C)
	Action Plan (if needed):	
	Responsible Party:	
	Completion Date:	
	Resources Needed:	
Phase 1: Beginning of Semester	**Indirect Measure:**	Informal Alumni Survey
	Target:	100% of students will report that they felt confident in their ability to build a Toolbox using common welding tools
	Sampling:	2-5 Past students that completed the welding program
Phase 2: End of Semester	**Data/Results:**	
	Data Summary/Analysis:	
	Action Plan (if needed):	
	Responsible Party:	
	Completion Date:	
	Resources Needed:	
	Overall Assessment of PLO:	

Welding Program Assessment 2018-19 Appendix A

WELDER PERFORMANCE QUALIFICATION RECORD

WELDER'S NAME:		**TEST SITE:** GARDEN CITY COMMUNITY COLLEGE	
WELDER SS No: XXX-X	**DATE:5-1-18**	**REFERENCE WPS No:GCCC2GF**	
VARIABLE	**ALIFICATION TEST DETA**	**QUALIFICATION RANGE**	
CODE OR SPECIFICATION US	ASME Section IX	ASME Section IX	
WELDING PROCESS AND TYP	☑ MANUAL ☐ SEMI-AUTOMATIC ☐ MECHANIZED ☐ AUTOMATIC	☑ MANUAL ☐ SEMI-AUTOMATIC ☐ MECHANIZED ☐ AUTOMATIC	
BACKING:	N/A	REQUIRED IF USED: N/A	
BASE METAL SPEC. No./P-N	ASTM A5 P1-P1	ASTM A53 P1-P1	
PLATE/PIPE THICKNESS-GRO	☐ PLATE ☑ PIPE .337 THICK.	.337 Thick	
PLATE/PIPE THICKNESS-FILL	☐ PLATE ☐ PIPE_____THICK.		
PIPE/TUBULAR O.D.-GROOVE	4" Schedule 80	4" Schedule 80	
PIPE/TUBULAR O.D.-FILLET	n/a	n/a	
METAL SPECIFICATION No.	SFA 5.18	SFA 5.18	
CLASSIFICATION NO.	ER70s-2	ER70s-2	
F-No.	Six	Six	
DIAMETER:	1/8"	1/8"	
CONSUMABLE INSERT:	☐ YES ☑ NO	n/a	
PENETRANT ENHANCING FL	☐ YES ☑ NO	n/a	
DEPOSITED WELD METAL TH	0.337	0.337	
CURRENT POLARITY & RANG	TYPE/POLARITY RANGE: 70-200 AMPS:70-	70-200amps	
METAL TRANSFER MODE(GM	n/a	n/a	
TORCH SHIELDING GAS:	TYPE: 100% ArgonFLOW:15-40C	100% Argon FLOW:15-40CFH	
ROOT SHIELDING GAS:	TYPE: n/a FLOW:	n/a	
POSITION(S):	TEST POSITION(S):2G	QUALIFIED POSITION(S):1G,2G	
VERTICAL PROGRESSION:	☐ UPHILL ☐ DOWNHILL	☐ UPHILL ☐ DOWNHILL	

MECHANICAL TEST RESULTS

TYPE AND FIGURE No.	RESULTS	TYPE AND FIGURE No.	RESULTS
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

GUIDED MECHANICAL TESTING CONDUCTED BY: KURT WENZEL DATE:

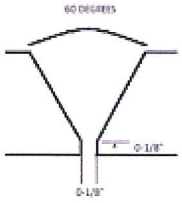
NONDESTRUCTIVE EXAMINATION RESULTS

RADIOGRAPHIC RESULTS:n/a	REPORT No:n/a
RADIOGRAPHIC TESTING CONDUCTED BY:n/a	
WELDING WITNESSED BY:Kurt Wenzel/Devin Wacker	VISUAL INSPECTIO ☑ PASS ☐ FAIL

WE CERTIFY THAT THE STATEMENTS IN THIS RECORD ARE CORRECT AND THE TEST WELDS WERE PREPARED, WELDED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF AWS D1.1:2010

5/1/2018	SIGNED BY:

GARDEN CITY COMMUNITY COLLEGE WPS ASME SECTION IX					
WPS No	GCCC2GP1P1	**DATE:**	######	**SUPPORTING P**	GCCC2GP1P1PQR
REVISION No.	N/A	**DATE:**		N/A	
WELDING PROCESS(ES	SMAW			**TYPE:**	MANUAL

JOINTS(QW-402)		
JOINT DESIGN:	SINGLE V-GROOVE	
ROOT SPACING	0-1/8"	
BACKIN	☐ YES ☑ NO	
BACKING MATE	N/A	
THE GROOVE ANGLE IS 60° INCLUDED, THE ROOT FACE DIMENSION IS 0-1/8"		

BASE METALS(QW-403)					
P-No:	1	**GROUP No:**	1	**SPEC. No. OR UNS No:**	SFA-36
TO					
P-No:	1	**GROUP No:**	1	**SPEC. No. OR UNS No:**	SFA-36
BASE METAL THICKNES	1"			**PASS THICKNESS ≤¼"**	☑ YES ☐ NO
THICKNESS QUALIFIED:	3/16"-2"				

FILLER METALS(QW-404)			
1ST PROCESS		**2ND PROCESS**	
SPEC. No.(SFA)	SFA-5.1	**SPEC. No.(SFA)**	SFA-5.1
AWS No.(CLASS	E6010	**AWS No.(CLASS**	E7018-H4R
F-No:	3	**F-No:**	4
A-No:	1	**A-No:**	1
FILLER METAL S	1/8"	**FILLER METAL S**	3/32" AND/OR 1/8"
ELD METAL THIC	GROOVE: 0-2"	**ELD METAL THIC**	GROOVE: 0-2"
CONSUMABLE IN	☐ YES ☑ NO	**CONSUMABLE IN**	☐ YES ☑ NO

POSITIONS(QW-405)			
POSITION:	☐ 1G ☑ 2G ☐ 3G ☐ 4G ☐ 5G ☐ 6G	**PROGRESSION:**	☐ UPHILL ☐ DOWNHILL

PREHEAT(QW-406)			
PREHEAT MIN:	32°F	**INTERPASS MA**	450°F
PREHEAT MAINTENANCE	NONE		

POSTWELD HEAT TREATMENT(QW-407)			
TEMPERATURE RANGE:	NONE	**TIME RANGE:**	NONE

GARDEN CITY COMMUNITY COLLEGE WPS ASME SECTION IX								
WPS No	GCCC2GP1P1		DATE:	######	SUPPORTING P	GCCC2GP1P1PQR		
REVISION No.	N/A		DATE:		N/A			
WELDING PROCESS(ES	SMAW				TYPE:	MANUAL		
GAS(QW-408)								
SHIELDING:	GAS(ES	N/A		MIXTUR	N/A	FLOW RATE:		
TRAILING:	GAS(ES	N/A		MIXTUR	N/A	FLOW RATE:		
BACKING:	GAS(ES	N/A		MIXTUR	N/A	FLOW RATE:		
ELECTRICAL CHARACTERISTICS(QW-409)								
ELD PASS	PROCESS	CLASS.	DIAMETER	TYPE AND POLARIT	MPS(RANG	VOLTAGE (RANGE)	TRAVEL SPEED (RANGE)	OTHER
1	SMAW	E6010	1/8"	DCEP	75-100	VAR.	5-12 IPM	WELDER CAN
2	SMAW	E7018-H4R	1/8"	DCEP	90-135	VAR.	5-12 IPM	USE 3/32" ELECTRODE IN THE RANGE OF
AMPS AND VOLTS RANGE SHALL BE RECORDED FOR EACH ELECTRODE SIZE, F								
PULSING CURR		N/A			HEAT INPUT(MA	40500 J/IN		
TUNGSTEN ELECTRODE		N/A			TUNGSTEN ELECTRODE		N/A	
TECHNIQUE(QW-410)								
BEAD TYPE:	☑ STRINGER	☑ WEAVE			NOZZLE OR CUP SIZE:		N/A	
INITIAL AND INTERPASS CLEANING: CLEAR MILL SCALE OR OXIDATION FROM CUTTING, WIRE BRUSH, GRIND F								
METHOD OF BACKGOUGING:		N			ELECTRODE ANGLE:	10°-15° LEADING		
MULTIPLE OR SINGLE P	MULTIPLE				MULTIPLE OR SINGLE EL	SINGLE		
PEENING:	N/A	USE OF THERMAL PROC			OXYFUEL BEVEL PREPARATION			

Welding Program Assessment 2018-19 Appendix B

WELDER PERFORMANCE QUALIFICATION RECORD

WELDER'S NAME:	**TEST SITE:** GARDEN CITY COMMUNITY	
WELDER SS No: XXX-X	**DATE:5-1-18**	**REFERENCE WPS No:G**
VARIABLE	**ALIFICATION TEST DET**	**QUALIFICATION RANGE**
CODE OR SPECIFICATION US	ASME Section IX	ASME Section IX
WELDING PROCESS AND TYP	☑ MANUAL ☐ SEMI-AUTOMATIC ☐ MECHANIZED ☐ AUTOMATIC	☑ MANUAL ☐ SEMI-AUTOMATIC ☐ MECHANIZED ☐ AUTOMATIC
BACKING:	N/A	REQUIRED IF USED: N/A
BASE METAL SPEC. No./P-N	ASTM A5 P1-P1	ASTM A53 P1-P1
PLATE/PIPE THICKNESS-GR	☐ PLATE ☑ PIPE .337 THICK.	.337 Thick
PLATE/PIPE THICKNESS-FILL	☐ PLATE ☐ PIPE_____THICK.	
PIPE/TUBULAR O.D.-GROOVE	4" Schedule 80	4" Schedule 80
PIPE/TUBULAR O.D.-FILLET	n/a	n/a
METAL SPECIFICATION No.	SFA 5.18	SFA 5.18
CLASSIFICATION NO.	ER70s-2	ER70s-2
F-No.	Six	Six
DIAMETER:	1/8"	1/8"
CONSUMABLE INSERT:	☐ YES ☑ NO	n/a
PENETRANT ENHANCING FL	☐ YES ☑ NO	n/a
DEPOSITED WELD METAL TH	0.337	0.337
CURRENT POLARITY & RANG	TYPE/POLARITY RANGE: 70-200 AMPS:70-	70-200amps
METAL TRANSFER MODE(GM	n/a	n/a
TORCH SHIELDING GAS:	TYPE: 100% ArgonFLOW:15-40C	100% Argon FLOW:15-40CF
ROOT SHIELDING GAS:	TYPE: n/a FLOW:	n/a
POSITION(S):	TEST POSITION(S):5G	QUALIFIED POSITION(S):1G,2G
VERTICAL PROGRESSION:	☑ UPHILL ☐ DOWNHILL	☑ UPHILL ☐ DOWNHILL

MECHANICAL TEST RESULTS

TYPE AND FIGURE No.	RESULTS	TYPE AND FIGURE No.	RESULTS
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

GUIDED MECHANICAL TESTING CONDUCTED BY: KURT WENZEL DATE:

NONDESTRUCTIVE EXAMINATION RESULTS

RADIOGRAPHIC RESULTS:n/a	REPORT No:n/a
RADIOGRAPHIC TESTING CONDUCTED BY:n/a	
WELDING WITNESSED BY:Kurt Wenzel/Devin Wacke	VISUAL INSPECTIO ☑ PASS ☐ FAIL

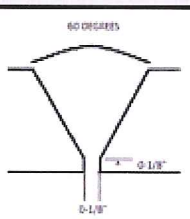
WE CERTIFY THAT THE STATEMENTS IN THIS RECORD ARE CORRECT AND THE TEST WELDS WERE PREPARED, WELDED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF AWS D1.1:2018

5/1/2018	SIGNED BY:

GARDEN CITY COMMUNITY COLLEGE WPS
ASME SECTION IX

WPS No	GCCC5GP1P1	DATE:	######	SUPPORTING P	GCCC5GP1P1PQF
REVISION No.	N/A	DATE:		N/A	
WELDING PROCESS(ES)	GTAW			TYPE:	MANUAL

JOINTS(QW-402)

JOINT DESIGN:	SINGLE V-GROOVE	
ROOT SPACING	0-1/8"	
BACKIN	☐ YES ☑ NO	
BACKING MATE	N/A	
THE GROOVE ANGLE IS 60° INCLUDED, THE ROOT FACE DIMENSION IS 0-1/8"		

BASE METALS(QW-403)

P-No:	1	GROUP No:	1	SPEC. No. OR UNS No:	SFA-36
TO					
P-No:	1	GROUP No:	1	SPEC. No. OR UNS No:	SFA-36
BASE METAL THICKNES		1/2"		PASS THICKNESS ≤¼"	☑ YES
THICKNESS QUALIFIED:		3/16"-1"			

FILLER METALS(QW-404)

1ST PROCESS		2ND PROCESS	
SPEC. No.(SFA	SFA-5.18	SPEC. No.(SFA	N/A
AWS No.(CLASS	ER70s-2	AWS No.(CLASS	N/A
F-No:	6	F-No:	N/A
A-No:	1	A-No:	N/A
FILLER METAL S	1/8"	FILLER METAL S	N/A
ELD METAL THIC	GROOVE: 0-2"	ELD METAL THIC	N/A
CONSUMABLE IN	☐ YES ☑ NO	CONSUMABLE IN	☑ YES ☑ NO

POSITIONS(QW-405)

POSITION:	☐ 1G ☐ 2G ☐ 3G ☐ 4G ☑ 5G ☐ 6G	PROGRESSION:	☑ UPHILL ☐ DOWNHILL

PREHEAT(QW-406)

PREHEAT MIN:	32°F	INTERPASS MA	450°F
PREHEAT MAINTENANC	NONE		

POSTWELD HEAT TREATMENT(QW-407)

TEMPERATURE RANGE:	NONE	TIME RANGE:	NONE

GARDEN CITY COMMUNITY COLLEGE WPS ASME SECTION IX								
WPS No	GCCC5GP1P1		DATE:	######	SUPPORTING P	GCCC5GP1P1PQF		
REVISION No.	N/A		DATE:		N/A			
WELDING PROCESS(ES	GTAW				TYPE:	MANUAL		
GAS(QW-408)								
SHIELDING:	GAS(ES	Argon		MIXTUR	N/A	FLOW RATE: 15-		
TRAILING:	GAS(ES	N/A		MIXTUR	N/A	FLOW RATE:		
BACKING:	GAS(ES	N/A		MIXTUR	N/A	FLOW RATE:		
ELECTRICAL CHARACTERISTICS(QW-409)								
ELD PASS	PROCESS	CLASS.	DIAMETER	TYPE AND POLARIT	MPS(RANG	VOLTAGE (RANGE)	TRAVEL SPEED (RANGE)	OTHER
1	GTAW	ER70s-2	1/8"	DCEN	70-200	VAR.	5-12 IPM	
2	GTAW	E70s-2	1/8"	DCEn	70-200	VAR.	5-12 IPM	
AMPS AND VOLTS RANGE SHALL BE RECORDED FOR EACH ELECTRODE								
PULSING CURR	N/A			HEAT INPUT(MA	40500 J/IN			
TUNGSTEN ELECTRODE	N/A			TUNGSTEN ELECTRODE	EWTh-2			
TECHNIQUE(QW-410)								
BEAD TYPE:	☑ STRINGER	☑ WEAVE		NOZZLE OR CUP SIZE:	N/A			
INITIAL AND INTERPASS CLEANING: CLEAR MILL SCALE OR OXIDATION FROM CUTTING, WIRE BR								
METHOD OF BACKGOUGING:	N	ELECTRODE ANGLE: 10°-15° LEAD						
MULTIPLE OR SINGLE P	MULTIPLE	MULTIPLE OR SINGLE EL	SINGLE					
DEEMING:	N/A	USE OF THERMAL PROC	WELD REVEL PREPARATIO					

Welding Program Assessment 2018-19 Appendix C

Name:

Layout and Fabrication Tool Box Final

Grading Catigories	Total Possible	Total received	Comments
Blueprint & Bill of Materials (100 pts)			
Blueprint	50 pts		
Bill of Materials	50 pts		
Completion (all parts are there and must be operational 300 pts)			
Box	50 pts		
Lid	50 pts		
Handles	50 pts		
Latching Mechanism	50 pts		
Operation	50 pts		
Timeliness (Completed in the time allowed)	50 pts		
Quality 100 pts			
Weld Quality	50 pts		
Fit up Quality	50 pts		
Total	500 pts		

Welding Program Assessment 2018-19 Appendix D

Hand and Power Tools Homework

1) A bladed hand tool is safest if it is _____.
   a) slightly dull to prevent serious cuts
   b) inspected and maintained regularly
   c) well oiled
   d) kept warm to prevent shattering

2) A wrench with sprung jaws is dangerous because _____.
   a) the space between the jaws and the nut or bolt is a pinch point
   b) the loose jaws could cause the wrench to slip off and hit someone
   c) the jaws could easily break off after they are sprung
   d) sprung jaws can bend the bolt

3) Bladed tools can directly cause all of the following injuries except _____.
   a) stab wounds
   b) punctures
   c) burns
   d) amputations

4) When inspecting an impact tool, _____ indicates that the tool may be dangerous.
   a) a mushroomed head
   b) a missing guard
   c) a two prong plug
   d) no insulation

5) The two most common types of injuries associated with impact tools are hammer strikes and eye injuries.
   a) True
   b) False

6) You may safely plug a grounded plug into a two prong receptacle if you carefully remove the grounding prong.
   a) True
   b) False

7) Since they are only powered by air, pneumatic tolls do not pose any safety risks.
   a) True
   b) False

8) Liquid fuel tools could start a fire when _____.
   a) flammable fuel vapor comes into contact with the hot tool
   b) the power cord shorts out and causes sparks
   c) the operator is using the tool while standing in water
   d) the air hose is not grounded

9) All of the following are risks typically associated with hydraulic tools except _____.
   a) slipping
   b) flying objects
   c) tipping
   d) tripping

10) Powered abrasive wheels can explode on startup.
   a) True
   b) False

Welding Program Assessment 2018-19 Appendix E

PIPEFITTING FINAL FALL 2018 INSTRUCTIONS

- LOCATE ALL FITTINGS AND MATERIAL
- FIGURE EACH CUT LENGTH ON PAPER BEFORE CUTTING ANY MATERIAL
- ALL FITS ON THE WELDMENT SHALL BE WITHIN THE LINES ON A LEVEL
- ALL GAPS SHALL BE 1/8" +/- 1/16"
- NO HI-LO OVER 1/16" WILL BE ALLOWED
- WORK ONLY WITHIN YOUR ASSIGNED GROUP(IF OUTSIDE HELP IS NEEDED, GET IT APPROVED BY AN INSTRUCTOR FIRST)

20 POINTS WILL BE SUBTRACTED FOR EACH REQUIREMENT ABOVE THAT IS NOT MET

NAME: _____

PIPEFITTING FINAL FALL 2018

GROUP PARTICIPATION GRADE

GRADE EACH OF YOUR TEAM MEMBERS TO THE CATEGORIES BELOW. ASSIGN A GRADE OF 1 THRU 5 INCLUDING AN EXPLANATION OF WHY YOU ASSIGNED EACH GRADE:

5=A

4=B

3=C

2=D

1=F

CUT LENGTH CALCULATION PARTICIPATION GRADE:

TEAM MEMBER NAME: GRADE:

TEAM MEMBER NAME: GRADE:

TEAM MEMBER NAME: GRADE:

GRINDING PARTICIPATION GRADE:

TEAM MEMBER NAME: GRADE:

TEAM MEMBER NAME: GRADE:

TEAM MEMBER NAME: GRADE:

CUTTING PARTICIPATION GRADE:

TEAM MEMBER NAME: GRADE:

TEAM MEMBER NAME: GRADE:

TEAM MEMBER NAME: GRADE:

FITTING PARTICIPATION GRADE:

TEAM MEMBER NAME: GRADE:

TEAM MEMBER NAME: GRADE:

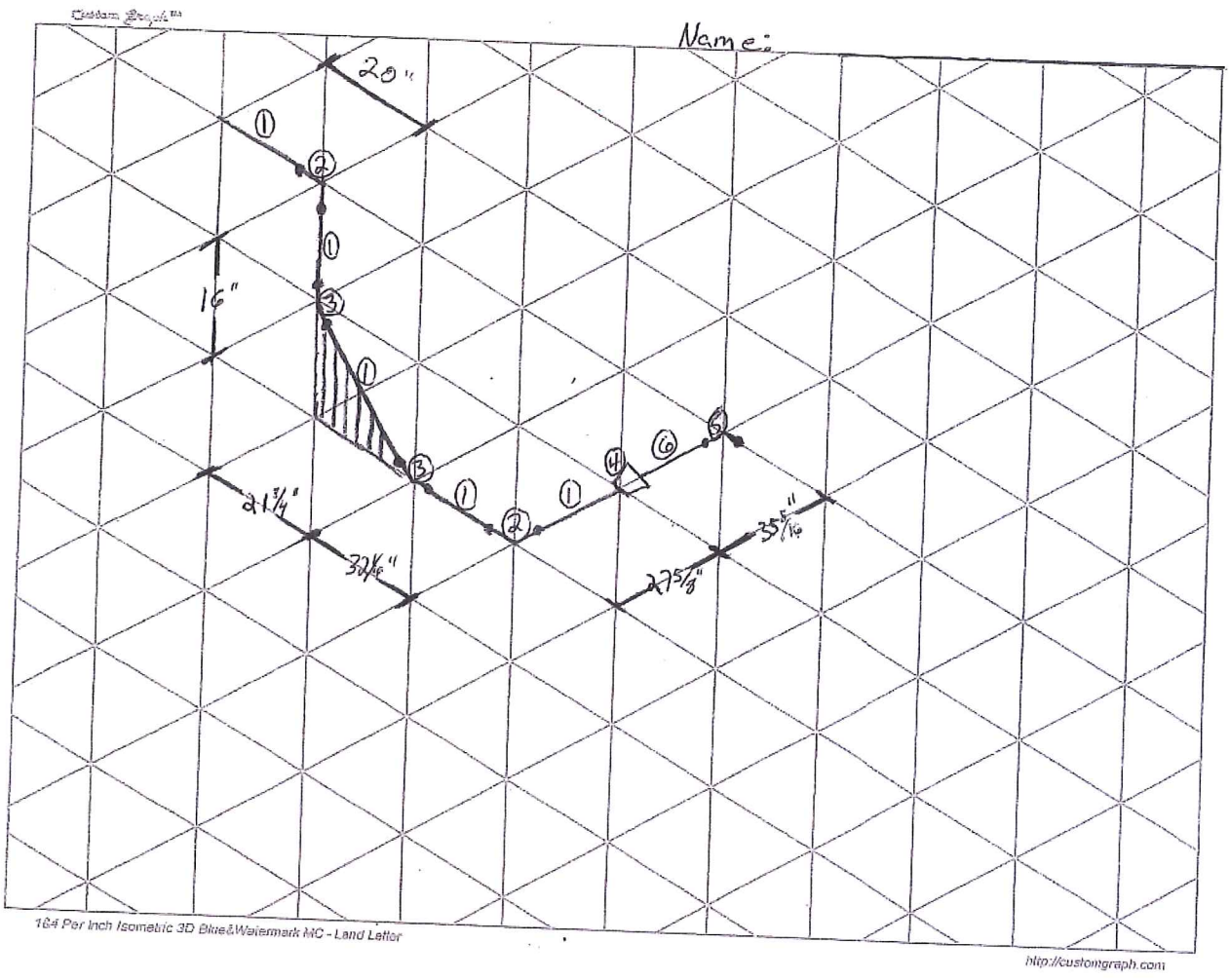
TEAM MEMBER NAME: GRADE:

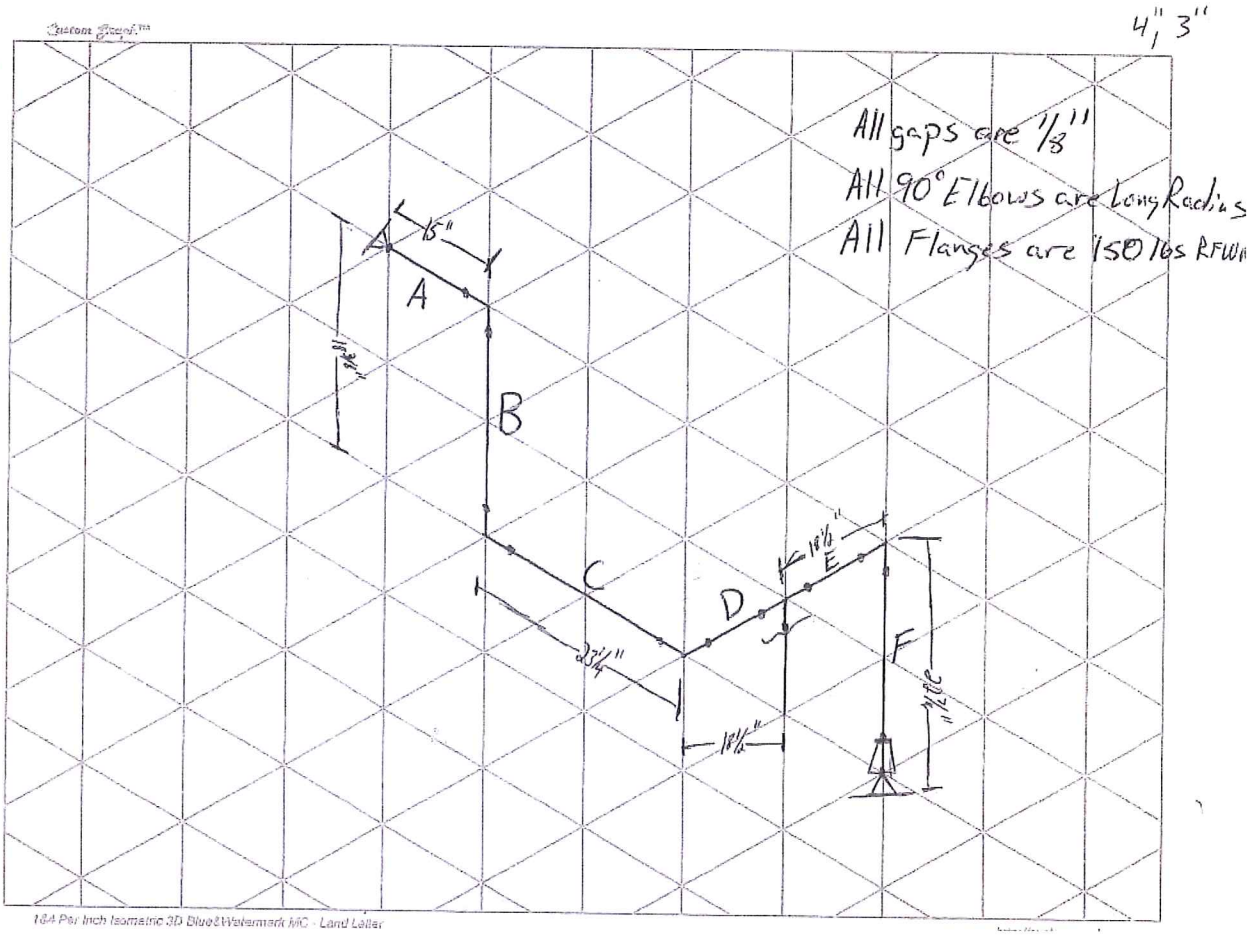
TACK WELDING PARTICIPATION GRADE:

TEAM MEMBER NAME: GRADE:

TEAM MEMBER NAME: GRADE:

TEAM MEMBER NAME: GRADE:


Name:
20"
16"
21¾"
32½"
27⅝"
35⅝"
1:64 Per Inch Isometric 3D Blue&Watermark MC - Land Letter
http://customgraph.com


4" 3"
All gaps are 1/8"
All 90° Elbows are Long Radius
All Flanges are 150 lbs RFW
A
B
C
D
E
F
15"
23¾"
18½"
18½"
184 Per Inch Isometric 3D Blue&Watermark MC - Land Letter

Annual Program Assessment 2017-18

Program:	Welding AAS
Program Mission Statement:	The mission of the Welding Technologies Program at Garden City Community College is to train skilled craftsman in the construction and manufacturing fields related to welding. To provide students with not only welding skills but a positive attitude and a good work ethic.
Year:	Fall 2017 to spring 2018
Instructors:	Kurt Wenzel, Devin Wackerla, Norman Wyatt

Phase 1: Beginning of Semester	**Program Learning Outcome:**	**Graduates will be able to describe and practice welding safety**
	Direct Measure #1:	Introduction to Safety Written Exam during Welding Safety course
	Target:	100% of students enrolled in Welding Safety will score 100% on all welding safety tests
	Sampling:	100% of students enrolled in Welding Safety
Phase 2: End of Semester	**Data/Results:**	19/19 100%
	Data Summary/Analysis:	Target was Met**(Artifacts in Appendix A)**
	Action Plan (if needed):	N/A
	Responsible Party:	Kurt Wenzel, Devin Wackerla, Norman Wyatt
	Completion Date:	End of Fall 2017
	Resources Needed:	N/A
Phase 1: Beginning of Semester	**Direct Measure #2:**	Hazard Communication Written Exam during Welding Safety course
	Target:	100% of students enrolled in Welding Safety will score 100% on all welding safety tests
	Sampling:	100% of students enrolled in Welding Safety
Phase 2: End of Semester	**Data/Results:**	19/19 100%
	Data Summary/Analysis:	Target was Met **(Artifacts in Appendix B)**
	Action Plan (if needed):	N/A
	Responsible Party:	Kurt Wenzel, Devin Wackerla, Norman Wyatt
	Completion Date:	End of Fall 2017
	Resources Needed:	N/A
Phase 1: Beginning of Semester	**Indirect Measure:**	Informal Alumni Survey
	Target:	100% of students will report that they felt competent in their welding safety training
	Sampling:	2-5 Past students that completed the welding program
Phase 2: End of Semester	**Data/Results:**	2-2 100%
	Data Summary/Analysis:	Both former students felt competent in welding safety
	Action Plan (if needed):	N/A
	Responsible Party:	Kurt Wenzel, Devin Wackerla, Norman Wyatt
	Completion Date:	N/A
	Resources Needed:	N/A
	Overall Assessment of PLO:	Both Targets were met. All students are required to score 100% on safety tests before being allowed in the welding shop. I foresee this PLO being met consistently with 100%

Phase 1: Beginning of Semester	**Program Learning Outcome:**	**Graduates will be able to interpret welding symbols and demonstrate how to work off of a blueprint**
	Direct Measure #1:	Blueprint Reading for Welders Pressure Vessel Exam
	Target:	100% of students enrolled in Blueprint Reading will score 85% on all Blueprint Reading Exams
	Sampling:	100% of students enrolled in Blueprint Reading for Welders
Phase 2: End of Semester	**Data/Results:**	17/18 95%
	Data Summary/Analysis:	Target was Met**(Artifacts in Appendix C)**
	Action Plan (if needed):	N/A
	Responsible Party:	Kurt Wenzel, Devin Wackerla, Norman Wyatt
	Completion Date:	End of Fall 2017
	Resources Needed:	N/A
Phase 1: Beginning of Semester	**Direct Measure #2:**	Blueprint Reading for Welders Storage Tanks Exam
	Target:	100% of students enrolled in Welding Safety will score 85% on all Blueprint Reading Exams
	Sampling:	100% of students enrolled in Blueprint Reading for Welders
Phase 2: End of Semester	**Data/Results:**	18/18 100%
	Data Summary/Analysis:	Target was Met**(Artifacts in Appendix D)**
	Action Plan (if needed):	N/A
	Responsible Party:	Kurt Wenzel, Devin Wackerla, Norman Wyatt
	Completion Date:	End of Fall 2017
	Resources Needed:	N/A
Phase 1: Beginning of Semester	**Indirect Measure:**	Informal Alumni Survey
	Target:	100% of students will report that they felt confident in there ability to read a blueprint.
	Sampling:	2-5 Past students that completed the welding program
Phase 2: End of Semester	**Data/Results:**	2-2 100%
	Data Summary/Analysis:	Both former students felt competence in reading blueprints
	Action Plan (if needed):	N/A
	Responsible Party:	Kurt Wenzel, Devin Wackerla, Norman Wyatt
	Completion Date:	N/A
	Resources Needed:	N/A
	Overall Assessment of PLO:	Both Targets were met. 4 years ago we changed our textbook to IPT's Guide to Blueprint Interpretation. The results of changing textbooks have been very positive

Phase 1: Beginni...	**Program Learning Outcome:**	**Graduates will be able to weld plate in 1F,2F,3F,4F, 1G,2G,3G,4G Positions**

	Direct Measure #1:	Welding Performance Qualifications
	Target:	80% of students enrolled in Industrial Welding I will be able to pass a 3G performance qualification
	Sampling:	100% of students enrolled in Industrial Welding I
Phase 2: End of Semester	**Data/Results:**	15/17 88%
	Data Summary/Analysis:	Target was Met**(Artifacts in Appendix E)**
	Action Plan (if needed):	N/A
	Responsible Party:	Kurt Wenzel, Devin Wackerla, Norman Wyatt
	Completion Date:	End of Fall 2017
	Resources Needed:	N/A
Phase 1: Beginning of Semester	**Direct Measure #2:**	Welding Performance Qualifications
	Target:	80% of students enrolled in Industrial Welding I will be able to pass a 4G performance qualification in all plate positons
	Sampling:	100% of students enrolled in Industrial Welding I
Phase 2: End of Semester	**Data/Results:**	15/17 88%
	Data Summary/Analysis:	Target was Met**(Artifacts in Appendix F)**
	Action Plan (if needed):	N/A
	Responsible Party:	Kurt Wenzel, Devin Wackerla, Norman Wyatt
	Completion Date:	End of Fall 2018
	Resources Needed:	N/A
Phase 1: Beginning of Semester	**Indirect Measure:**	Informal Alumni Survey
	Target:	100% of students will report that they felt confident in there ability to weld plate.
	Sampling:	2-5 Past students that completed the welding program
Phase 2: End of Semester	**Data/Results:**	2-2 100%
	Data Summary/Analysis:	Both former students felt competent in reading blueprints
	Action Plan (if needed):	N/A
	Responsible Party:	Kurt Wenzel, Devin Wackerla, Norman Wyatt
	Completion Date:	N/A
	Resources Needed:	N/A
	Overall Assessment of PLO:	Both Targets were met. After Spring 17 we changed to a 1 year format, and added in 200hr. Of welding training. The results of that change are higher percentages of our students passing performance qualifications.

These questions will help to gather data needed for the 5-year Comprehensive Program Review.

Please answer the questions for the current academic year.

1) List any committees program instructors served on for GCCC this year
   Kurt- Strategic Planning Committee, Devin- Curriculum and Instruction
2) List any board or committees program instructors served on outside of GCCC
   N/A
3) List any professional organizations program instructors belong to
   AWS, NCCER
4) List any conferences program instructors attended
   Kurt- FabTech
5) List any publications program instructors appeared in, authored, or were cited in
   N/A
6) List any new partnerships program instructors organized, or participated in between GCCC and any local, state, national business or association
   We have partnered with Deerfield High School to teach Basic Welding Courses
7) List any other professional accomplishments
   Devin and Kurt are Certified Welding Inspectors
8) List any academic/professional successes Alumni from your program achieved
   One of our former students opened his own Welding Business and is doing well
9) List any grants won by your department
   KanTrain
10) List any facilities improvements in your area that have positively affected student learning
   New Facility, New Welders, Powder Coat oven, Shear, Brake, etc.
11) List any additional major curriculum, personnel, facilities or department change that has affected the ability of your department to effectively serve your students.
   Norman has been kept on after the completion of the grant.
n List any additional professional development. Examples include awards you received, shows, performances or recitals performed outside of GCCC, presentations at conferences, papers, or lectures that you presented to organizations or schools, mentorships, course development, visitations to classrooms for the purpose of instructional improvement, and any other professional activity that is central to the mission of your department or the college pillars of success.

Welding Program Assessment 2017-18 Appendix A

Introduction to Safety Test- Welding Safety

1) A competent person for safety purposes is _____.
   a) appointed by the company
   b) an OSHA inspector
   c) a worker who has received safety training
   d) any foreman or supervisor

2) Best practices for safety _____.
   a) are minimum standards
   b) are developed by OSHA
   c) are required by law
   d) often exceed minimum safety standards

3) OSHA's mission is to protect _____.
   a) the economy
   b) employers
   c) the environment
   d) workers

4) OSHA must investigate an accident _____.
   a) if it involves an injury
   b) if someone is killed
   c) to levy a fine
   d) to issue citations

5) Two types of material handling are _____.
   a) heavy and light
   b) manual and mechanical
   c) single and team
   d) safe and unsafe

6) OSHA citations and penalties affect _____.
   a) company management
   b) everyone on the job site
   c) safety technicians
   d) site supervisors

7) Ergonomics is the study of how people are physically affected by _____.
   a) accidents and incidents on the job site
   b) temperature changes during work
   c) work-related movements, motions and postures
   d) long-term back injury complications

8) Using legal drugs, such as prescription painkillers, does not constitute an unsafe act.
   a) True
   b) False

9) Cold weather can cause unsafe working conditions.
   a) True
   b) False

10) The cost of accidents only affects the company.
   a) True
   b) False

Welding Program Assessment 2017-18 Appendix B

Hazard Communication Test- Welding Safety

1) OSHA's Hazard Communication Standard requires all employers to educate employees about on-site hazardous chemicals.
   a) True
   b) False

2) Ordinary concrete can cause lung disease.
   a) True
   b) False

3) Washing your hands can help prevent chemical exposure.
   a) True
   b) False

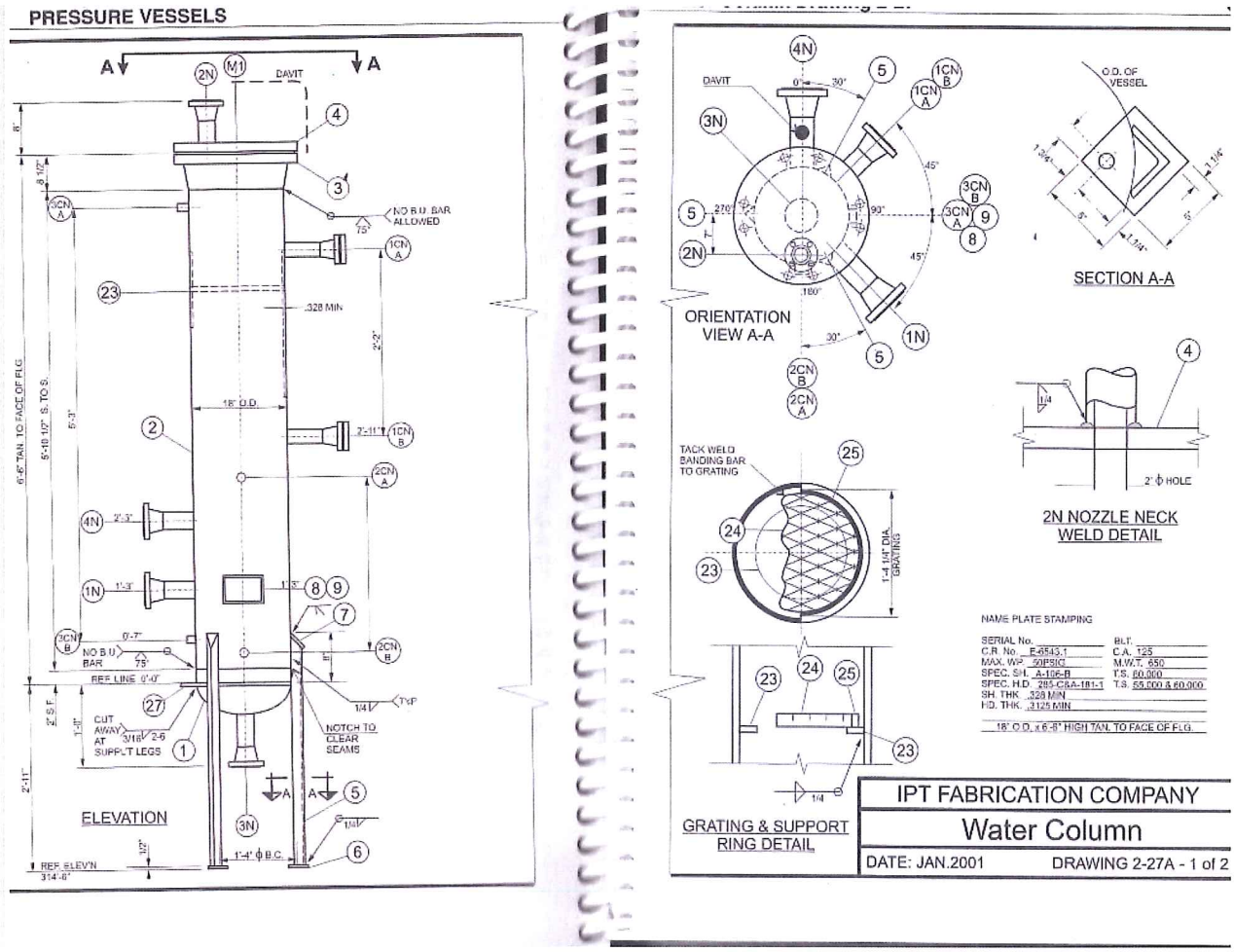
4) Breathing asbestos for many years is known as acute exposure.
   a) True
   b) False

5) Nausea from breathing solvent vapors is _____.
   a) grounds for an OSHA fine b) an acute effect of chemical exposure
   c) not mentioned on the MSDS d) no cause for concern

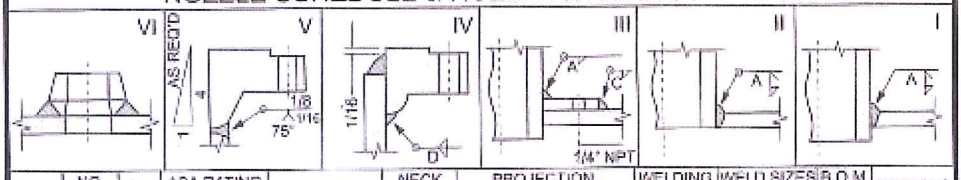
6) A NFPA label with a flammability rating of 3 would indicate that the product _____.
   a) will not burn b) must be preheated to burn
   c) ignites when moderately heated d) ignites at normal temperature

7) The information on an MSDS includes _____.
   a) cost and availability b) ecological properties
   c) local fire codes d) warranty limitations

8) The information on an MSDS is for _____.
   a) the safety officer b) anyone who uses the product
   c) chemical manufacturers d) the OSHA inspector


PRESSURE VESSELS
ELEVATION
ORIENTATION VIEW A-A
SECTION A-A
2N NOZZLE NECK WELD DETAIL
GRATING & SUPPORT RING DETAIL
NAME PLATE STAMPING
IPT FABRICATION COMPANY
Water Column
DATE: JAN.2001
DRAWING 2-27A - 1 of 2

NOZZLE SCHEDULE & NOZZLE WELDING DETAILS



MARK	NO. REQ'D	SIZE	ASA RATING & FACING	SERVICE	NECK O.D.	PROJECTION OUTSIDE	PROJECTION INSIDE	WELDING DETAIL #	WELD SIZES A	B	C	D	B.O.M. NO.	REMARKS
1N	1	2"	150# RF	INLET	2 3/8"	8"	SET FLUSH	II & V	1/4				12,13	
2N	1	2"	150# RF	OUTLET	SHOWN	SHOWN	ABUTTING	SHOWN & V					12,14	
3N	1	2"	150# RF	DRAIN	2 3/8"	SHOWN	TRIM FLUSH	II & V	1/4				12,15	
4N	1	2"	150# RF	WATER INLET	2 3/8"	8"	SET FLUSH	II & V	1/4				12,13	
M1	1	18"	150# RF	MANWAY	18"			SHOWN					3,4	C/W BLINDS, DAVIT & NOZZ. E IN
1CN	2	1 1/2"	150# RF	SPARE	1 15/16"	8"	SET FLUSH	II & V	1/4				17,16	C/W BLIND
2CN	2	1 1/2"	3000# CPLG	L.L.A.	2 1/2"		SET FLUSH	II	1/4				19	
3CN	2	1 1/2"	3000# CPLG	L.G.	2 1/2"		SET FLUSH	II	1/4				19	

BILL OF MATERIALS

ITEM NO.	PART NO. OR REQ. NO.	QTY.	DESCRIPTION	MATERIAL
1	REQ.# 42856	1	HEAD 18" O.D. x 5/16" MIN. 24 S.E. 2" S.F.	A-285-C
2	REQ.# 42857	1	18" - STD (.375 WALL) SMLS. PIPE x 5'10 1/2" LG (BBE)	A-106-B
3	REQ.# 42862	1	18" - 150# ANSI. RFWN FLG. W/.375 WALL BORE	A-181-1
4	REQ.# 42862	1	18" - 150# ANSI. RF. BLIND FLG.	A-181-1
5	REQ.# 43600	3	3 x 3 x 5/16" ANGLE x 3'-6 1/2" LG.	A-36
6		3	PL 5" x 1/2" x 5"	A-283-C
7		3	PL 3 1/4" x 1/4" x 5" LG. (TRIM TO SUIT)	A-283-C
8	08-CU-938	1	NAME PLBRKT.	A-283-C
9	08-CS-1301	1	NAMEPLATE	S.S
12	REQ.# 42862	4	2" - 150# ANSI. RFWN FLG. W/XHY. BORE	A-181-1
13		2	2" - XXHY. SMLS. PIPE x 8 1/4" LG. (BOE POE)	A-53-B
14		1	2" - XHY. SMLS. PIPE x 4 1/2" LG (BBF)	A-53-B
15		1	2" - XXHY. SMLS. PIPE x 6 1/2" LG (BOE POE)	A-53-B
17	REQ.# 42862	2	1 1/2" - 150# ANSI. RFWN FLG. W/XHY BORE	A-181-1
18		2	1 1/2" - XXHY. SMLS. PIPE x 6 1/4" LG. (BOE POE)	A-53-B
19		4	1 1/2" - 3000# COUPLING	A-105-11
23		1	F. BAR 2" x 3/8" x 4'-6" LG. (ROLL ON EDGE TO 1'-5 3/16" O.D.)	C.S.
24	REQ.# 43600	1	GRATING 1'-4" DIA. x 3/4" THK. W/3 1/2" RIVET SPACING 3/4 x 1/8	C.S.
25		1	F. BAR 3/4" x 1/16 x 4'-2 13/16" LG. (ROLL ON FLAT TO 1'-4" I.D.)	C.S.
27		1	BAR 3/4" x 3/16" x 5'-3" LG. (ROLL ON EDGE TO 18" I.D.)	C.S.
			FURNISH & INSTALL	
FOR		1	GSKT. FOR 18"-150# RF. FLG.	JM-60
M1	REQ.# 43600	16	1 1/8"ø x 5 3/4" LG. STUDS c/w HEX. NUTS	A-193-B7 A-194-2H
FOR		2	GSKT. FOR 1 1/2" - 150# RF. FLG.	JM-60
1CN		8	1/2"ø x 2 3/4" LG. STUDS c/w 2 HEX. NUTS	A-193-B7 A-194-2H
	REQ.# 42862	2	1 1/2"ø-150# ANSI. RF. BLIND FLG.	A-181-1

IPT FABRICATION COMPANY	
Water Column - Details	
DATE: JAN.2001	DRAWING 2-27B - 2 of 2

PRESSURE VESSELS

zle 1N is how many degrees from degree centerline:
- ❑ 45 degrees
- ❑ 90 degrees
- ☒ 135 degrees
- ❑ 180 degrees

zle 2N is located on what center
: 190°

zle 2N is how many inches off the 270 degree centerline?
: 7"

at is the number of support legs ı #5) shown in the orientation ?
: 3 Legs

ich of the following shows the lo- ın of each leg in degrees from the gree centerline?
- ❑ 0, 90 and 270 degrees
- ❑ 30, 90 and 270 degrees
- ❑ 30, 120 and 270 degrees
- ☒ 30, 150 and 270 degrees

e davit arm is located on the 0 ree centerline.
- ☒ true
- ❑ false

ıat type of line represents nozzle ɔn the orientation view.
- ☒ hidden line
- ❑ object line
- ❑ section line
- ❑ broken line

69. The name plate bracket is located on the:
- ❑ 0 degree centerline
- ☒ 90 degree centerline
- ❑ 180 degree centerline
- ❑ 270 degree centerline

70. How many nozzles are located on the 45 degree centerline?
- ❑ 1
- ☒ 2
- ❑ 3
- ❑ 4

Nozzle Schedule and Nozzle Welding Details Drawing 2-27

71. Nozzle 1N is designated as an inlet nozzle for this vessel.
- ☒ true
- ❑ false

72. What nozzle is designated as a spare?
Answer: 1CN

73. What nozzle is used as a level gage?
- ❑ 2N
- ❑ 2CN
- ☒ 3CN
- ❑ 4N

74. The pressure rating of the couplings is:
- ❑ 150#
- ❑ 300#
- ☒ 3000#
- ❑ not shown

75. What two nozzles are supplied with blinds?
Answer: M1, 1CN

Water Column/Propane Vessel 2-28 85

76. What is the outside diameter of the pipe that is used for the neck of the manway nozzle?
Answer: 19" OD

77. What is the outside projection for nozzle 4N?
Answer: 8"

78. List the Bill of Material item numbers that make up nozzle 1CN.
Answer: 17 and 18

79. As indicated in the weld detail, what is the leg size of the fillet weld required on Nozzle 1N?
Answer: 1/4 in

80. As shown in the weld detail, how much gap is required between the flange and the neck of 3N?
Answer: 1/16 in

Bill of Materials for Water Column Drawing 2-27

81. What is the wall thickness of the pipe used for the shell of this pressure vessel?
Answer: .375 in

82. The end preparation of item 2 is:
- ❑ square cut one end
- ☒ bevel one end
- ❑ bevel both ends
- ❑ square cut both ends

83. What is the leg size and thickness of the angle iron used for the support legs?
Answer: 3x3, 5/16

84. Write out the following abbreviations.
- XXHY Double extra heavy
- RFWN Raised face weld Neck
- SMLS. Seamless
- FLG. flange
- B.O.E. Bevel one end
- P.O.E. Plain one end

85. The nameplate is made of stainless steel.
- ☒ true
- ❑ false

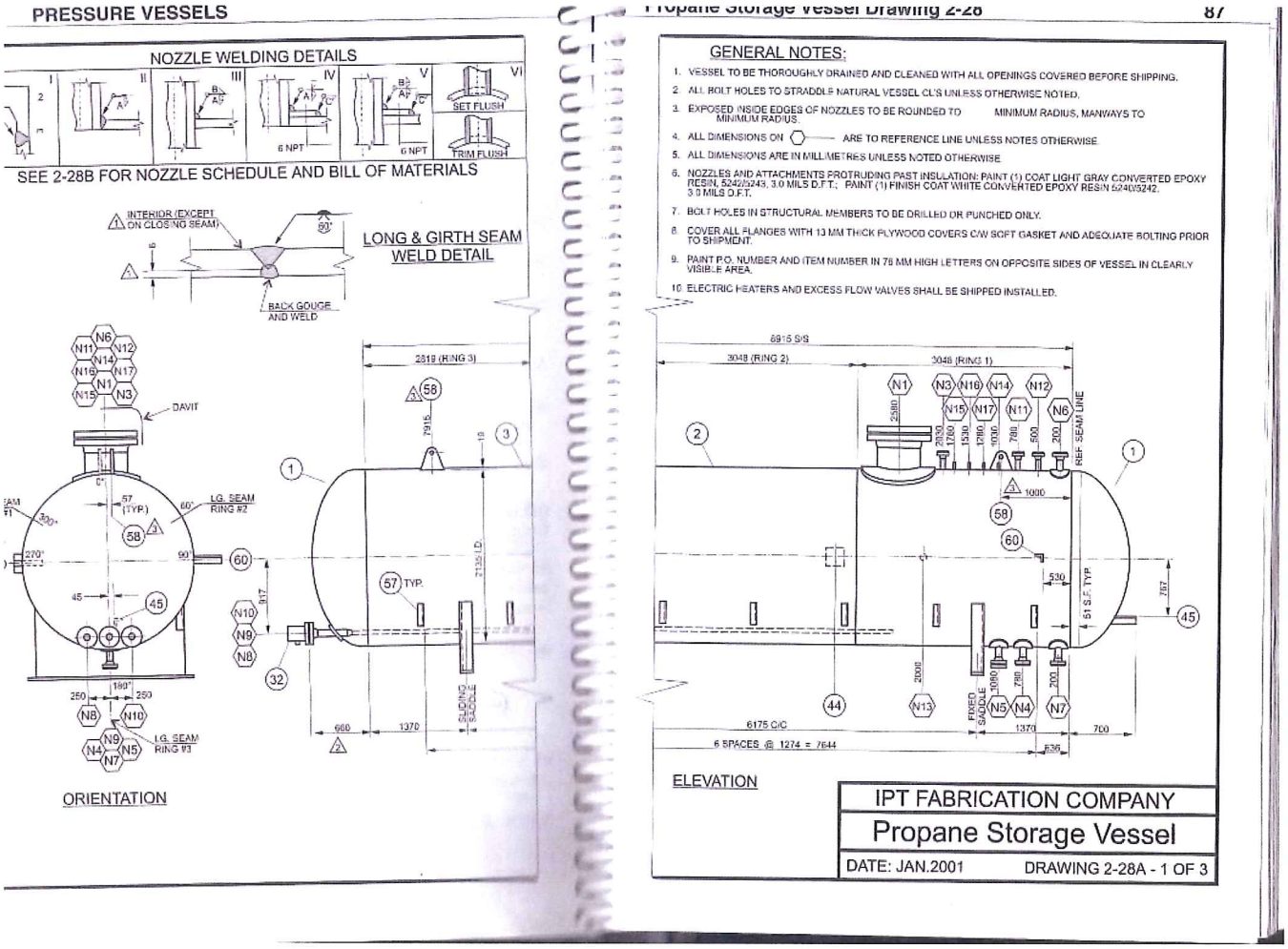
Propane Storage Vessel Drawing 2-28

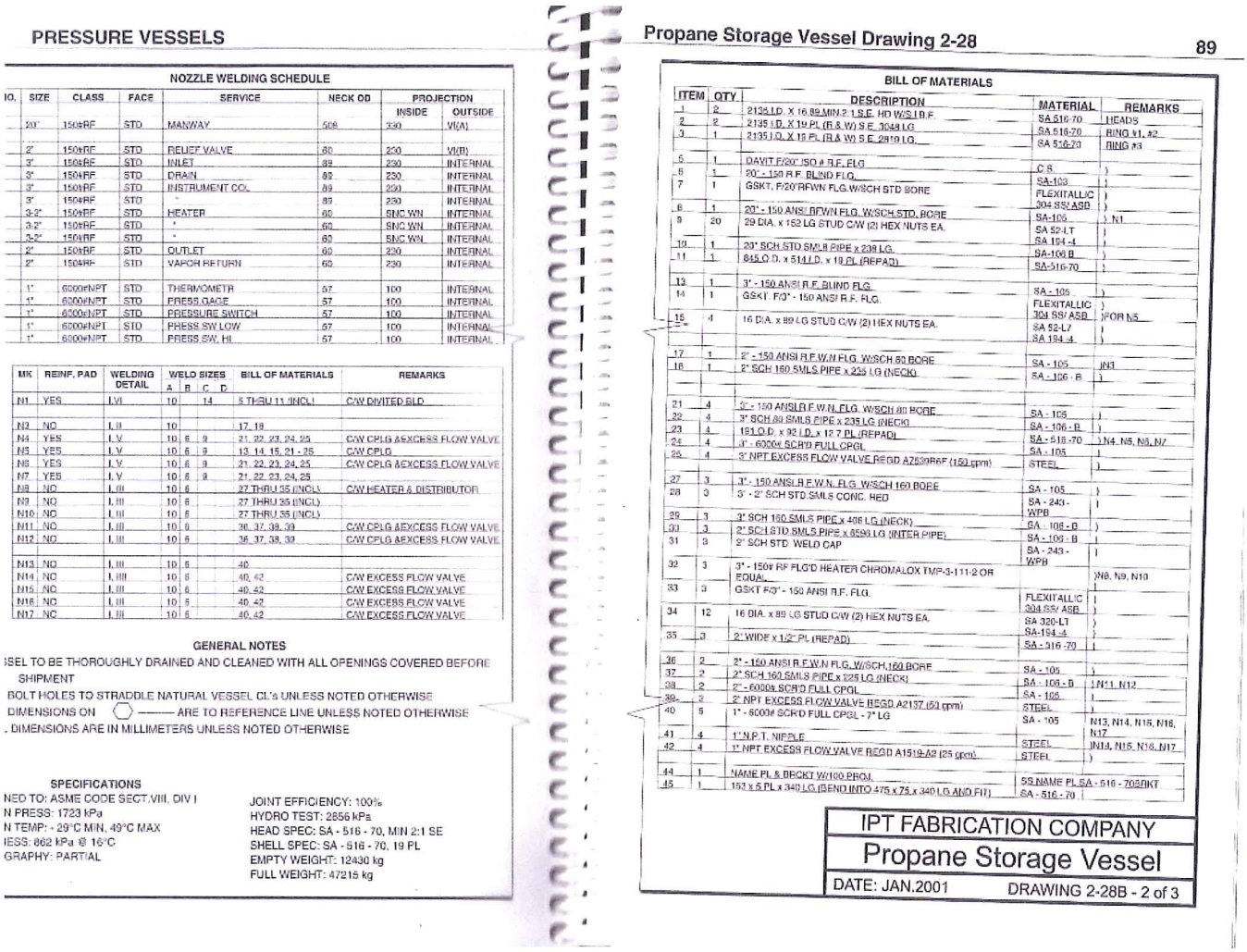
This is a horizontal pressure vessel used to store propane gas. Horizontal vessels are supported by saddles. The saddles are located close to the ends of the vessel because of the stiffening effect of the heads. This helps give the shell rigidity. Saddles are designed to cradle the vessel for about one third of its circumference. The saddles will sit on concrete footings or a steel structure, with the vessel cradled in the saddles which are fastened down with anchor bolts.

Locate the elevation view of this vessel. As with any vessel elevation view, the location of the nozzles as shown on the view are not necessarily their correct location on the outside circumference of the vessel. The elevation view only shows where the nozzles are located in relationship to the length of the vessel. The nozzles are shown in their correct position on the outside circumference of the vessel on the orientation view.

Some of the parts of the vessel are dimensioned using what is termed in drafting textbooks as conventional or standard dimensions. For instance the location of the saddles can be laid out from either end of the vessel.

Welding Program Assessment 2017-18 Appendix D





PRESSURE VESSELS

Propane Storage Vessel Drawing 2-28

89

NOZZLE WELDING SCHEDULE

IO.	SIZE	CLASS	FACE	SERVICE	NECK OD	PROJECTION	
						INSIDE	OUTSIDE
	20"	150#RF	STD	MANWAY	508	330	VI(A)
	2"	150#RF	STD	RELIEF VALVE	60	230	VI(B)
	3"	150#RF	STD	INLET	89	230	INTERNAL
	3"	150#RF	STD	DRAIN	89	230	INTERNAL
	3"	150#RF	STD	INSTRUMENT CONN.	89	230	INTERNAL
	3"	150#RF	STD	"	89	230	INTERNAL
	3-2"	150#RF	STD	HEATER	60	SNC WN	INTERNAL
	3-2"	150#RF	STD	"	60	SNC WN	INTERNAL
	3-2"	150#RF	STD	"	60	SNC WN	INTERNAL
	2"	150#RF	STD	OUTLET	60	230	INTERNAL
	2"	150#RF	STD	VAPOR RETURN	60	230	INTERNAL
	1"	6000#NPT	STD	THERMOMETR	57	100	INTERNAL
	1"	6000#NPT	STD	PRESS GAGE	57	100	INTERNAL
	1"	6000#NPT	STD	PRESSURE SWITCH	57	100	INTERNAL
	1"	6000#NPT	STD	PRESS SW LOW	57	100	INTERNAL
	1"	6000#NPT	STD	PRESS SW, HI	57	100	INTERNAL

MK	REINF. PAD	WELDING DETAIL	WELD SIZES A	B	C	D	BILL OF MATERIALS	REMARKS
N1	YES	I,VI	10		14		5 THRU 11 (INCL)	C/W DIVITED BLD
N2	NO	I,II	10				17, 19	
N4	YES	I,V	10	6	9		21, 22, 23, 24, 25	C/W CPLG &EXCESS FLOW VALVE
N5	YES	I,V	10	6	9		13, 14, 15, 21 - 25	C/W CPLG
N6	YES	I,V	10	6	9		21, 22, 23, 24, 25	C/W CPLG &EXCESS FLOW VALVE
N7	YES	I,V	10	6	9		21, 22, 23, 24, 25	
N8	NO	I,III	10	6			27 THRU 35 (INCL)	C/W HEATER & DISTRIBUTOR
N9	NO	I,III	10	6			27 THRU 35 (INCL)	
N10	NO	I,III	10	6			27 THRU 35 (INCL)	
N11	NO	I,III	10	6			36, 37, 38, 39	C/W CPLG &EXCESS FLOW VALVE
N12	NO	I,III	10	6			36, 37, 38, 39	C/W CPLG &EXCESS FLOW VALVE
N13	NO	I,III	10	6			40	
N14	NO	I,IIII	10	6			40, 42	C/W EXCESS FLOW VALVE
N15	NO	I,III	10	6			40, 42	C/W EXCESS FLOW VALVE
N16	NO	I,III	10	6			40, 42	C/W EXCESS FLOW VALVE
N17	NO	I,III	10	6			40, 42	C/W EXCESS FLOW VALVE

GENERAL NOTES

SEL TO BE THOROUGHLY DRAINED AND CLEANED WITH ALL OPENINGS COVERED BEFORE SHIPMENT

BOLT HOLES TO STRADDLE NATURAL VESSEL CL's UNLESS NOTED OTHERWISE

DIMENSIONS ON ◯ ——— ARE TO REFERENCE LINE UNLESS NOTED OTHERWISE

. DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE

SPECIFICATIONS

NED TO: ASME CODE SECT.VIII, DIV I
N PRESS: 1723 kPa
N TEMP: - 29°C MIN, 49°C MAX
IESS: 862 kPa @ 16°C
GRAPHY: PARTIAL

JOINT EFFICIENCY: 100%
HYDRO TEST: 2856 kPa
HEAD SPEC: SA - 516 - 70, MIN 2:1 SE
SHELL SPEC: SA - 516 - 70, 19 PL
EMPTY WEIGHT: 12430 kg
FULL WEIGHT: 47215 kg

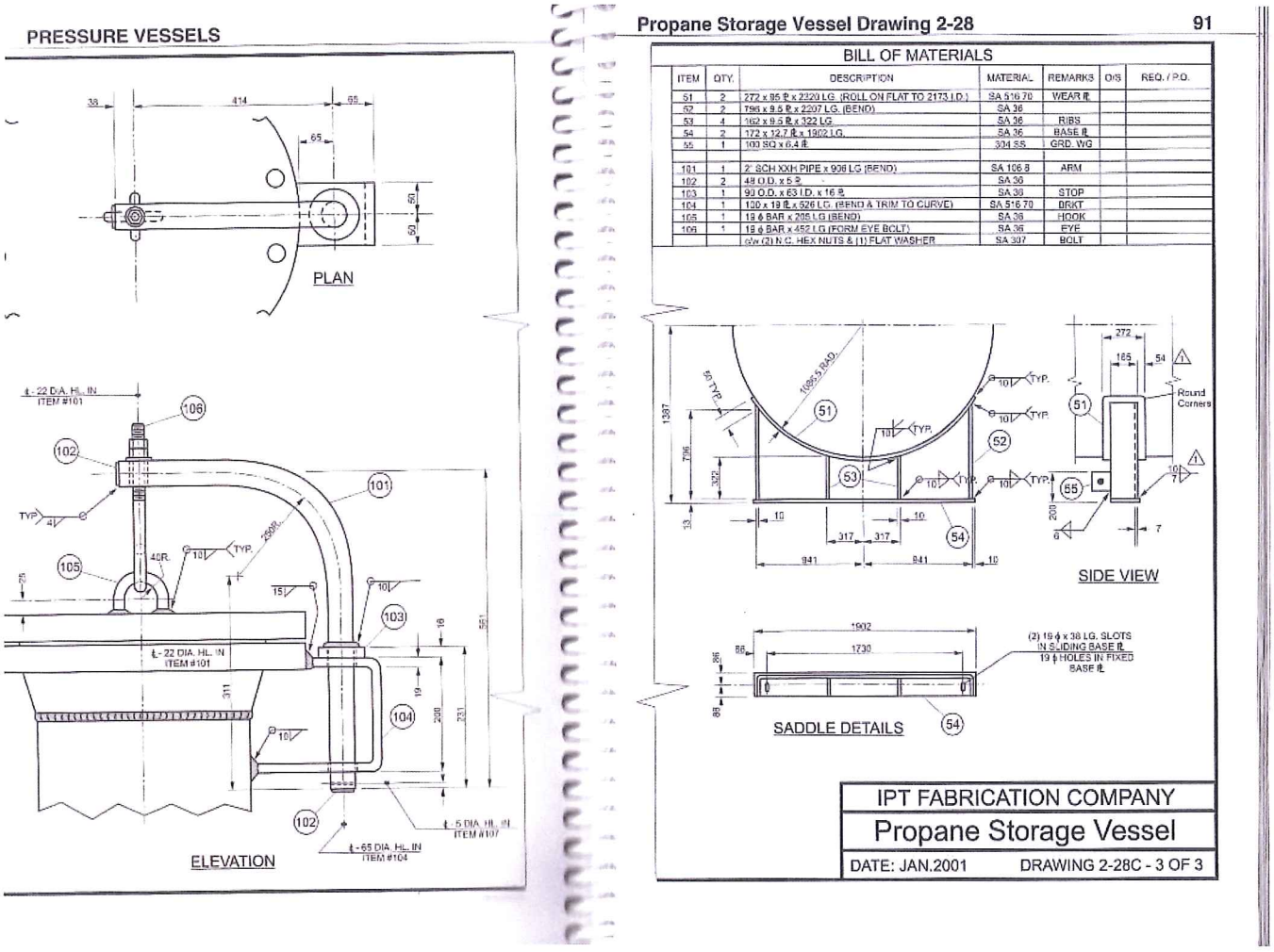
BILL OF MATERIALS

ITEM	QTY	DESCRIPTION	MATERIAL	REMARKS
1	2	2135 I.D. X 16.89 MIN.2: 1 S.E. HD W/S I.B.F.	SA 516-70	HEADS
2	2	2135 I.D. X 19 PL (R & W) S.E. 3048 LG	SA 516-70	RING #1, #2
3	1	2135 I.D. X 19 PL (R & W) S.E. 2819 LG.	SA 516-70	RING #3
5	1	DAVIT F/20" ISO # R.F. FLG	C.S.	)
6	1	20" - 150 R.F. BLIND FLG.	SA-103	)
7	1	GSKT. F/20" RFWN FLG.W/SCH STD BORE	FLEXITALLIC 304 SS/ ASB	)
8	1	20" - 150 ANSI RFWN FLG. W/SCH STD. BORE	SA-105	) N1
9	20	29 DIA. x 152 LG STUD C/W (2) HEX NUTS EA.	SA 52-LT	)
10	1	20" SCH STD SMLS PIPE x 238 LG.	SA 194 -4	)
11	1	845 O.D. x 514 I.D. x 19 PL (REPAD)	SA-106 B	)
			SA-516-70	)
13	1	3" - 150 ANSI R.F. BLIND FLG.		
14	1	GSKT. F/3" - 150 ANSI R.F. FLG.	SA - 105	)
15	4	16 DIA. x 89 LG STUD C/W (2) HEX NUTS EA.	FLEXITALLIC 304 SS/ ASB	)FOR N5
			SA 52-L7	)
			SA 194 -4	)
17	1	2" - 150 ANSI R.F.W.N FLG. W/SCH 80 BORE	SA - 105	)N1
18	1	2" SCH 160 SMLS PIPE x 235 LG (NECK)	SA - 106 - B	)
21	4	3" - 150 ANSI R.F.W.N. FLG. W/SCH 80 BORE	SA - 105	)
22	4	3" SCH 80 SMLS PIPE x 235 LG (NECK)	SA - 106 - B	)
23	4	191 O.D. x 92 I.D. x 19.7 PL (REPAD)	SA - 516 -70	) N4, N5, N6, N7
24	4	3" - 6000# SCR'D FULL CPGL	SA - 105	)
25	4	3" NPT EXCESS FLOW VALVE REGD AZ539R6F (150 gpm)	STEEL	)
27	3	3" - 150 ANSI R.F.W.N. FLG. W/SCH 160 BORE	SA - 105	)
28	3	3" - 2" SCH STD SMLS CONC. HED	SA - 243 - WPB	)
29	3	3" SCH 160 SMLS PIPE x 406 LG (NECK)	SA - 106 - B	)
30	3	2" SCH STD SMLS PIPE x 6598 LG (INTER PIPE)	SA - 106 - B	)
31	3	2" SCH STD WELD CAP	SA - 243 - WPB	)
32	3	3" - 150# RF FLG'D HEATER CHROMALOX TMP-3-111-2 OR EQUAL		)N8, N9, N10
33	3	GSKT F/3" - 150 ANSI R.F. FLG.	FLEXITALLIC 304 SS/ ASB	)
34	12	16 DIA. x 89 LG STUD C/W (2) HEX NUTS EA.	SA 320-LT	)
35	3	2" WIDE x 1/2" PL (REPAD)	SA-194 -4	)
			SA - 516 -70	)
36	2	2" - 150 ANSI R.F.W.N FLG. W/SCH 160 BORE	SA - 105	)
37	2	2" SCH 160 SMLS PIPE x 225 LG (NECK)	SA - 106 - B	) N11, N12
38	2	2" - 6000# SCR'D FULL CPGL	SA - 105	)
39	2	2" NPT EXCESS FLOW VALVE REGD A2137 (50 gpm)	STEEL	)
40	5	1" - 6000# SCR'D FULL CPGL - 7" LG	SA - 105	N13, N14, N15, N16, N17
41	4	1" N.P.T. NIPPLE	STEEL	)N14, N15, N16, N17
42	4	1" NPT EXCESS FLOW VALVE REGD A1519-A2 (25 gpm)	STEEL	)
44	1	NAME PL & BRCKT W/100 PROJ.	SS NAME PL SA - 516 - 70 BRKT	
45	1	153 x 5 PL x 340 LG (BEND INTO 475 x 75 x 340 LG AND FIT)	SA - 516 - 70	

IPT FABRICATION COMPANY

Propane Storage Vessel

DATE: JAN.2001 DRAWING 2-28B - 2 of 3



PRESSURE VESSELS

PLAN

ELEVATION

Propane Storage Vessel Drawing 2-28 91

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	MATERIAL	REMARKS	O/S	REQ. / P.O.
51	2	272 x 95 ℞ x 2320 LG. (ROLL ON FLAT TO 2173 I.D.)	SA 516 70	WEAR ℞		
52	2	796 x 9.5 ℞ x 2207 LG. (BEND)	SA 36			
53	4	162 x 9.5 ℞ x 322 LG.	SA 36	RIBS		
54	2	172 x 12.7 ℞ x 1902 LG.	SA 36	BASE ℞		
55	1	100 SQ x 6.4 ℞	304 SS	1 GRD. WG		
101	1	2" SCH XXH PIPE x 936 LG (BEND)	SA 106 B	ARM		
102	2	48 O.D. x 5 ℞	SA 36			
103	1	90 O.D. x 63 I.D. x 16 ℞	SA 36	STOP		
104	1	100 x 19 ℞ x 526 LG. (BEND & TRIM TO CURVE)	SA 516 70	BRKT		
105	1	19 ϕ BAR x 205 LG (BEND)	SA 36	HOOK		
106	1	19 ϕ BAR x 452 LG (FORM EYE BOLT)	SA 36	EYE		
		c/w (2) N.C. HEX NUTS & (1) FLAT WASHER	SA 307	BOLT		

SIDE VIEW

SADDLE DETAILS

IPT FABRICATION COMPANY

Propane Storage Vessel

DATE: JAN.2001 DRAWING 2-28C - 3 OF 3

PRESSURE VESSELS

er, the nozzle location dimensions
t from a common reference point,
n this case is the right hand seam
ne dimensions shown for the noz-
e to each of their centers and are
on each nozzle extension line.
erson laying this vessel out in the
would measure all the nozzle cen-
om the seam reference line on the
and side of the vessel.

system, called baseline
sioning, is very accurate and does
quire any mathematical calcula-
o obtain the measurement. This is
se the exact dimension for each
is written on the extension line for
ozzle.

er type of dimensioning system,
group dimensioning, is used on
evation view. Item numbers 57
been dimensioned using this sys-
his method works well with dimen-
which are the same and are
ted. Items 57 will be used to sup-
pipe that will be attached to the
f the vessel.

are seven items 57 and each has
ame spacing between them. The
person simply locates the first one
epeats the spacing six times. If the
pace laid out measures 7644 milli-
s from the first one, they are laid out
ately.

ation View of the Propane age Vessel Drawing 2-28

hat is the center to center (c/c) dis-
ce between the anchor bolt holes
he fixed saddle and sliding saddle?
er: 675

etermine the heel to heel distance
tween any two of item #57.
er: _____

88. The heel to heel distance between the first and last pipe support brackets (item #57) is:
Answer: _____

89. The length of the shortest ring section of the shell is:
- ☒ 2819 mm
- ☐ 3048 mm
- ☐ 6096 mm
- ☐ 8915 mm

90. What is used as the reference line for the elevation view dimensioning of the nozzles?
- ☐ tangent point
- ☐ circumferencial seam
- ☒ right hand head seam
- ☐ left hand head seam

91. What is the distance from the left end head seam to the center of the left end lifting lug?
- ☒ 1000
- ☐ 2000
- ☐ 2819
- ☐ 8915

92. Calculate the distance from the tangent point of the right end head to the center of N1.
Answer: 263 MM

93. Determine the distance from the horizontal centerline to the center of nozzles N8, N9, and N10.
Answer: 917 MM

94. What is the center to center distance between the holes in the lifting lugs?
- ☐ 1000
- ☐ 3048
- ☒ 6915
- ☐ 7915

Propane Storage Vessel Drawing 2-28 93

95. How far is the heel of item #45 from the horizontal centerline of this vessel?
- ☒ 767
- ☐ 817
- ☐ 919
- ☐ 1092

96. The outside diameter of this vessel is:
- ☐ 2135 mm
- ☐ 2154 mm
- ☒ 2173 mm
- ☐ 2182 mm

97. What is the distance from the reference line to the first of items #57?
- ☐ 530 mm
- ☒ 636 mm
- ☐ 1274 mm
- ☐ 1370 mm

98. What is the length of ring #1?
Answer: 345 mm

99. The overall length of the shell rings, not including gap, is 8915 millimeters.
- ☒ true
- ☐ false

100. The location of N13 as shown in the elevation view can be described as:
- ☐ near side to the viewer
- ☒ far side to the viewer

Orientation View of the Propane Storage Vessel Drawing 2-28

101. How many nozzles are located on the 0 degree centerline?
Answer: 4

102. The longitudinal seam for ring #3 is located on the:
- ☐ 0 degree centerline
- ☐ 60 degree centerline
- ☒ 180 degree centerline
- ☐ 300 degree centerline

103. Calculate the number of degrees apart between longitudinal seam #2 and longitudinal seam # 1, starting from ring #2 and rotating in a clockwise direction.
- ☐ 60 degrees apart
- ☐ 120 degrees apart
- ☐ 180 degrees apart
- ☒ 240 degrees apart

104. The lifting lugs are offset on each side of the 0 degree centerline. What is the distance between them?
- ☐ 57 millimeters
- ☒ 114 millimeters
- ☐ 45 millimeters
- ☐ 90 millimeters

105. How far is the center of nozzle N10 from the 0 - 180 degree centerline.
Answer: 150

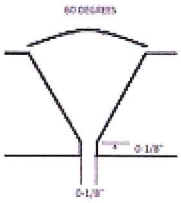
Manway Davit Detail for the Propane Vessel Drawing 2-28

106. What type of weld is required to join item #103 to item #101?
- ☐ bevel weld
- ☐ vee groove weld
- ☐ corner weld
- ☒ fillet weld

107. What is the diameter of the hole in item #101 to install the eye bolt?
Answer: 22 mm

Welding Program Assessment 2017-18 Appendix E

GARDEN CITY COMMUNITY COLLEGE WPS ASME SECTION IX					
WPS No	GCCC1GP1P1	DATE:	######	SUPPORTING P	GCCC3GP1P1PQR
REVISION No.	N/A	DATE:		N/A	
WELDING PROCESS(ES	SMAW			TYPE:	MANUAL

JOINTS(QW-402)		
JOINT DESIGN:	SINGLE V-GROOVE	
ROOT SPACING	0-1/8"	
BACKIN	☐ YES ☑ NO	
BACKING MATE	N/A	
THE GROOVE ANGLE IS 60° INCLUDED, THE ROOT FACE DIMENSION IS 0-1/8"		

BASE METALS(QW-403)					
P-No:	1	GROUP No:	1	SPEC. No. OR UNS No:	SFA-36
TO					
P-No:	1	GROUP No:	1	SPEC. No. OR UNS No:	SFA-36
BASE METAL THICKNES		1"		PASS THICKNESS ≤¼"	☑ YES ☐ NO
THICKNESS QUALIFIED:	3/16"-2"				

FILLER METALS(QW-404)			
1ST PROCESS		2ND PROCESS	
SPEC. No.(SFA)	SFA-5.1	SPEC. No.(SFA)	SFA-5.1
AWS No.(CLASS	E6010	AWS No.(CLASS	E7018-H4R
F-No:	3	F-No:	4
A-No:	1	A-No:	1
FILLER METAL S	1/8"	FILLER METAL S	3/32"AND/OR 1/8"
ELD METAL THIC	GROOVE: 0-2"	ELD METAL THIC	GROOVE: 0-2"
CONSUMABLE IN	☐ YES ☑ NO	CONSUMABLE IN	☐ YES ☑ NO

POSITIONS(QW-405)			
POSITION:	☐ 1G ☐ 2G ☑ 3G ☐ 4G ☐ 5G ☐ 6G	PROGRESSION:	☑ UPHILL ☐ DOWNHILL

PREHEAT(QW-406)			
PREHEAT MIN:	32°F	INTERPASS MA	450°F
PREHEAT MAINTENANC	NONE		

POSTWELD HEAT TREATMENT(QW-407)			
TEMPERATURE RANGE:	NONE	TIME RANGE:	NONE

GARDEN CITY COMMUNITY COLLEGE WPS ASME SECTION IX								
WPS No	GCCC1GP1P1		DATE:	######	SUPPORTING P	GCCC1GP1P1PQR		
REVISION No.	N/A		DATE:		N/A			
WELDING PROCESS(ES	SMAW				TYPE:	MANUAL		
GAS(QW-408)								
SHIELDING:	GAS(ES	N/A		MIXTUR	N/A	FLOW RATE:	N/A	
TRAILING:	GAS(ES	N/A		MIXTUR	N/A	FLOW RATE:	N/A	
BACKING:	GAS(ES	N/A		MIXTUR	N/A	FLOW RATE:	N/A	
ELECTRICAL CHARACTERISTICS(QW-409)								
ELD PASSI	PROCESS	CLASS.	DIAMETER	TYPE AND POLARIT	MPS(RANG	VOLTAGE (RANGE)	TRAVEL SPEED (RANGE)	OTHER
1	SMAW	E6010	1/8"	DCEP	75-100	VAR.	5-12 IPM	WELDER CAN
2	SMAW	E7018-H4R	1/8"	DCEP	90-135	VAR.	5-12 IPM	USE 3/32" ELECTRODE IN THE RANGE OF
AMPS AND VOLTS RANGE SHALL BE RECORDED FOR EACH ELECTRODE SIZE, P								
PULSING CURR	N/A			HEAT INPUT(MA	40500 J/IN			
TUNGSTEN ELECTRODE	N/A			TUNGSTEN ELECTRODE	N/A			
TECHNIQUE(QW-410)								
BEAD TYPE:	☑ STRINGER	☑ WEAVE		NOZZLE OR CUP SIZE:	N/A			
INITIAL AND INTERPASS CLEANING:	CLEAR MILL SCALE OR OXIDATION FROM CUTTING, WIRE BRUSH, GRIND R							
METHOD OF BACKGOUGING:	N			ELECTRODE ANGLE:	10°-15° LEADING			
MULTIPLE OR SINGLE P	MULTIPLE			MULTIPLE OR SINGLE EL	SINGLE			
PEENING:	N/A			USE OF THERMAL PROC	OXYFUEL BEVEL PREPARATION			

WELDER PERFORMANCE QUALIFICATION RECORD

WELDER'S NAME:		**TEST SITE:** GARDEN CITY COMMUNITY	
WELDER SS No: XXX-X	**DATE: 05-01-18**	**REFERENCE WPS No:G**	
VARIABLE	**ALIFICATION TEST DET**	**QUALIFICATION RANGE**	
CODE OR SPECIFICATION US	ASME SECTION IX	ASME SECTION IX	
WELDING PROCESS AND TYP	☑ MANUAL ☐ SEMI-AUTOMATIC ☐ MECHANIZED ☐ AUTOMATIC	☑ MANUAL ☐ SEMI-AUTOMATIC ☐ MECHANIZED ☐ AUTOMATIC	
BACKING:	N/A	N/A	
BASE METAL SPEC. No./P-N	ASTM A 36 - P1	ASTM A 36 - P1	
PLATE/PIPE THICKNESS-GR	☑ PLATE ☐ PIPE 1/2" THICK.	PLATE 1/2"-1"THICK.	
PLATE/PIPE THICKNESS-FILL	☐ PLATE ☐ PIPE N/A	N/A	
PIPE/TUBULAR O.D.-GROOVE	N/A	N/A	
PIPE/TUBULAR O.D.-FILLET	N/A	N/A	
METAL SPECIFICATION No.	A5.1	A5.1	
CLASSIFICATION NO.	E6010,E7018	E6010,E7018	
F-No.	3,4	3,4	
DIAMETER:	1/8"	1/8""	
CONSUMABLE INSERT:	☐ YES ☑ NO	N/A	
PENETRANT ENHANCING FL	☐ YES ☑ NO	N/A	
DEPOSITED WELD METAL TH	1/2"	1/2"	
CURRENT POLARITY & RANG	TYPE/POLARITY-DCEP AMPERAGE RANGE: 75-135	DCEP 75-115 AMPS	
METAL TRANSFER MODE(GM	N/A	N/A	
TORCH SHIELDING GAS:	TYPE:N/A FLOW:N/A	N/A	
ROOT SHIELDING GAS:	TYPE:N/A FLOW:N/A	N/A	
POSITION(S):	TEST POSITION(S):3G	QUALIFIED POSITION(S):1G,2G,3G,1F, 2F,3F	
VERTICAL PROGRESSION:	☑ UPHILL ☐ DOWNHILL	☑ UPHILL ☐ DOWNHILL	

MECHANICAL TEST RESULTS

TYPE AND FIGURE No.	RESULTS	TYPE AND FIGURE No.	RESULTS
SIDE BEND QW-462.2	ACCEPTABLE	SIDE BEND QW-462.2	ACCEPT/

GUIDED MECHANICAL TESTING CONDUCTED BY: KURT WENZEL, DEVIN WACKERLA

NONDESTRUCTIVE EXAMINATION RESULTS

RADIOGRAPHIC RESULTS: N/A	REPORT No:N/A
RADIOGRAPHIC TESTING CONDUCTED BY:N/A	
WELDING WITNESSED BY: KURT WENZEL, DEVIN W	VISUAL INSPECTION ☑ PASS ☐ FAIL

WE CERTIFY THAT THE STATEMENTS IN THIS RECORD ARE CORRECT AND THE TEST WELDS WERE PREPARED, WELDED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF ASME SECTION IX

DATE QUALIFIED: 05-01-2018	SIGNED BY:

Welding Program Assessment 2017-18 Appendix F

WELDER PERFORMANCE QUALIFICATION RECORD

WELDER'S NAME:	**TEST SITE:** GARDEN CITY COMMUNITY	
WELDER SS No: XXX-X	**DATE: 05-01-2018**	**REFERENCE WPS No:G**
VARIABLE	**ALIFICATION TEST DET**	**QUALIFICATION RANGE**
CODE OR SPECIFICATION US	ASME SECTION IX	ASME SECTION IX
WELDING PROCESS AND TYP	☑ MANUAL ☐ SEMI-AUTOMATIC ☐ MECHANIZED ☐ AUTOMATIC	☑ MANUAL ☐ SEMI-AUTOMATIC ☐ MECHANIZED ☐ AUTOMATIC
BACKING:	N/A	N/A
BASE METAL SPEC. No./P-N	ASTM A 36 - P1	ASTM A 36 - P1
PLATE/PIPE THICKNESS-GR	☑ PLATE ☐ PIPE 1/2" THICK.	PLATE 1/2"-1"THICK.
PLATE/PIPE THICKNESS-FILL	☐ PLATE ☐ PIPE N/A	N/A
PIPE/TUBULAR O.D.-GROOVE	N/A	N/A
PIPE/TUBULAR O.D.-FILLET	N/A	N/A
METAL SPECIFICATION No.	A5.1	A5.1
CLASSIFICATION NO.	E6010,E7018	E6010,E7018
F-No.	3,4	3,4
DIAMETER:	1/8"	1/8""
CONSUMABLE INSERT:	☐ YES ☑ NO	N/A
PENETRANT ENHANCING FL	☐ YES ☑ NO	N/A
DEPOSITED WELD METAL TH	1/2"	1/2"
CURRENT POLARITY & RANG	TYPE/POLARITY-DCEP AMPERAGE RANGE: 75-135	DCEP 75-115 AMPS
METAL TRANSFER MODE(GM	N/A	N/A
TORCH SHIELDING GAS:	TYPE:N/A FLOW:N/A	N/A
ROOT SHIELDING GAS:	TYPE:N/A FLOW:N/A	N/A
POSITION(S):	TEST POSITION(S):4G	QUALIFIED POSITION(S):1G,2G,3G,4G,1F, 2F,3F,4F
VERTICAL PROGRESSION:	☐ UPHILL ☐ DOWNHILL	☐ UPHILL ☐ DOWNHILL

MECHANICAL TEST RESULTS

TYPE AND FIGURE No.	RESULTS	TYPE AND FIGURE No.	RESULTS
SIDE BEND QW-462.2	ACCEPTABLE	SIDE BEND QW-462.2	ACCEPTA

GUIDED MECHANICAL TESTING CONDUCTED BY: KURT WENZEL, DEVIN WACKERLA

NONDESTRUCTIVE EXAMINATION RESULTS

RADIOGRAPHIC RESULTS: N/A	REPORT No:N/A
RADIOGRAPHIC TESTING CONDUCTED BY:N/A	
WELDING WITNESSED BY: KURT WENZEL, DEVIN W	VISUAL INSPECTIO ☑ PASS ☐ FAIL

WE CERTIFY THAT THE STATEMENTS IN THIS RECORD ARE CORRECT AND THE TEST WELDS WERE PREPARED, WELDED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF ASME SECTION IX

DATE QUALIFIED: 05-01-2018	SIGNED BY:

GARDEN CITY COMMUNITY COLLEGE WPS ASME SECTION IX					
WPS No	GCCC3GP1P1	DATE:	######	SUPPORTING P	GCCC3GP1P1PQR
REVISION No.	N/A	DATE:		N/A	
WELDING PROCESS(ES	SMAW			TYPE:	MANUAL
JOINTS(QW-402)					
JOINT DESIGN:	SINGLE V-GROOVE				
ROOT SPACING	0-1/8"				
BACKIN					
BACKING MATE	N/A				
THE GROOVE ANGLE IS 60° INCLUDED, THE ROOT FACE DIMENSION IS 0-1/8"					
BASE METALS(QW-403)					
P-No:	1	GROUP No:	1	SPEC. No. OR UNS No:	SFA-36
TO					
P-No:	1	GROUP No:	1	SPEC. No. OR UNS No:	SFA-36
BASE METAL THICKNES		1"		PASS THICKNESS ≤¾"	
THICKNESS QUALIFIED:	3/16"-2"				
FILLER METALS(QW-404)					
1ST PROCESS				2ND PROCESS	
SPEC. No.(SFA	SFA-5.1			SPEC. No.(SFA	SFA-5.1
AWS No.(CLASS	E6010			AWS No.(CLASS	E7018-H4R
F-No:	3			F-No:	4
A-No:	1			A-No:	1
FILLER METAL S	1/8"			FILLER METAL S	3/32"AND/OR 1/8"
ELD METAL THIC	GROOVE: 0-2"			ELD METAL THIC	GROOVE: 0-2"
CONSUMABLE IN				CONSUMABLE IN	
POSITIONS(QW-405)					
POSITION:				PROGRESSION:	
PREHEAT(QW-406)					
PREHEAT MIN:	32°F			INTERPASS MA	450°F
PREHEAT MAINTENANC	NONE				
POSTWELD HEAT TREATMENT(QW-407)					
TEMPERATURE RANGE:	NONE			TIME RANGE:	NONE

GARDEN CITY COMMUNITY COLLEGE WPS ASME SECTION IX								
WPS No	GCCC3GP1P1		DATE:	######	SUPPORTING P	GCCC3GP1P1PQR		
REVISION No.	N/A		DATE:		N/A			
WELDING PROCESS(ES	SMAW				TYPE:	MANUAL		
GAS(QW-408)								
SHIELDING:	GAS(ES	N/A		MIXTUR	N/A	FLOW RATE:	N/A	
TRAILING:	GAS(ES	N/A		MIXTUR	N/A	FLOW RATE:	N/A	
BACKING:	GAS(ES	N/A		MIXTUR	N/A	FLOW RATE:	N/A	
ELECTRICAL CHARACTERISTICS(QW-409)								
ELD PASS	PROCESS	CLASS.	DIAMETER	TYPE AND POLARIT	MPS(RANG	VOLTAGE (RANGE)	TRAVEL SPEED (RANGE)	OTHER
1	SMAW	E6010	1/8"	DCEP	75-100	VAR.	5-12 IPM	WELDER CAN
2	SMAW	E7018-H4R	1/8"	DCEP	90-135	VAR.	5-12 IPM	USE 3/32" ELECTRODE IN THE RANGE OF
AMPS AND VOLTS RANGE SHALL BE RECORDED FOR EACH ELECTRODE SIZE, P								
PULSING CURR	N/A			HEAT INPUT(MA	40500 J/IN			
TUNGSTEN ELECTRODE	N/A			TUNGSTEN ELECTRODE	N/A			
TECHNIQUE(QW-410)								
BEAD TYPE:				NOZZLE OR CUP SIZE:	N/A			
INITIAL AND INTERPASS CLEANING: CLEAR MILL SCALE OR OXIDATION FROM CUTTING, WIRE BRUSH, GRIND R								
METHOD OF BACKGOUGING:	N	ELECTRODE ANGLE: 10°-15° LEADING						
MULTIPLE OR SINGLE P	MULTIPLE	MULTIPLE OR SINGLE EL	SINGLE					
PEENING:	N/A	USE OF THERMAL PROC	OXYFUEL BEVEL PREPARATION					

Appendix D

Strategic Plan and Status Reports Since Last Review

Attach the program's Strategic Plan and Status Reports for the last 5 years or since the last program review.