



Process Technology Program of Study

Educational Business Plan

Date created: August 12, 2013



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Introduction

Laramie County Community College (LCCC or the College), through its School of Business, Agriculture and Technical Studies, is partnering with two regional process technology businesses and two other Wyoming community colleges to implement a pilot Process Technology accelerated certificate program. This program addresses Wyoming Governor Matt Mead's priority of improving safety within all of our state's refineries.



This pilot project is designed to recruit, enroll and train thirty-four (34) individuals – into two cohorts of approximately 17 during year 1. These students will be enrolled in the first tier of an anticipated multi-tier Process Technology Program of Study. Based on the success of this program and the evaluation of future demand, it is anticipated that the College will apply for permanent status and the addition of an Associates of Applied Science degree spring 2014 or as determined by industry.

The first cohort will begin Fall Semester 2013 and will complete in approximately 11 weeks. The second cohort will begin Spring Semester 2014 and will complete in approximately 11 weeks or as determined by assessing the quality of the program with the first cohort.

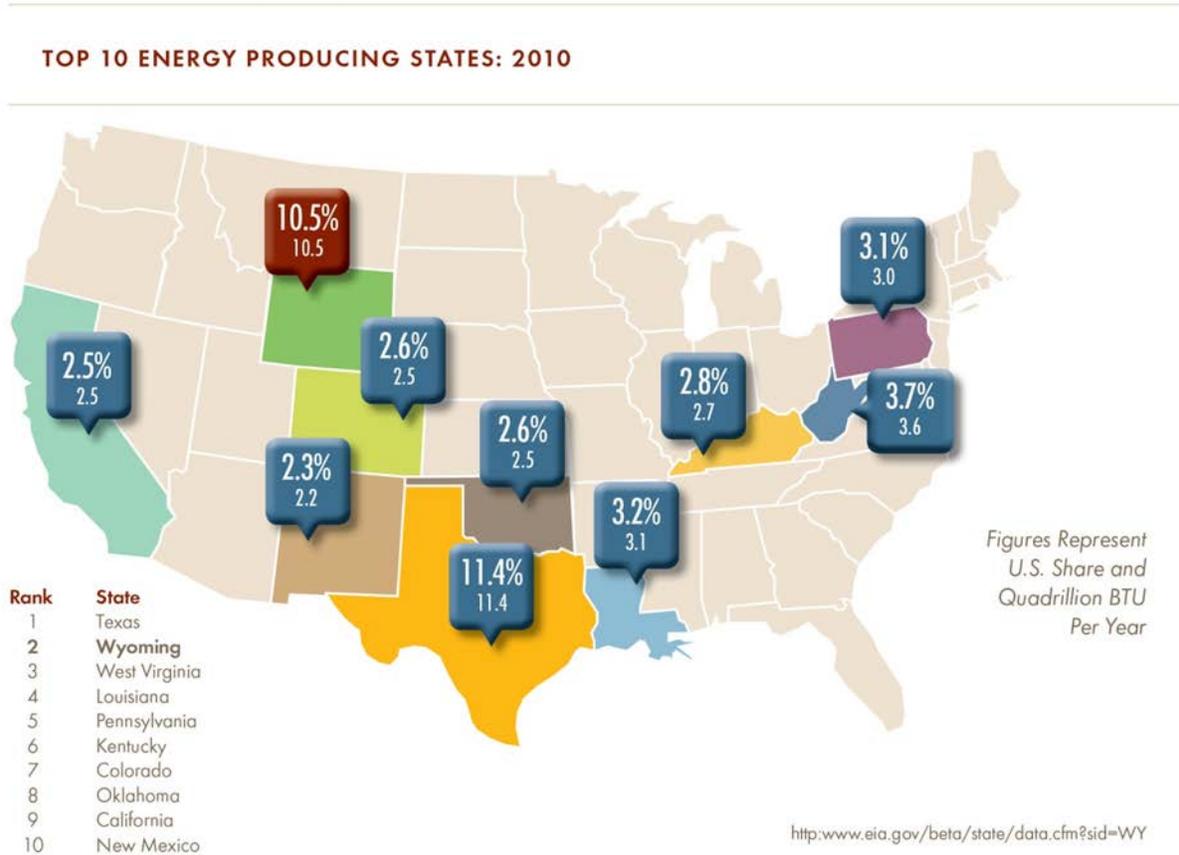
It is anticipated that most of the 34 enrollees will complete the first tier of the Process Technology program within the outlined timeframe. Industry partners have guaranteed interviews to all successful graduates. Industry anticipates job openings for all successful graduates. .

This educational business plan details the Certificate option within the Process Technology program. Once year one is evaluated, the program will be updated based on industry feedback. At that time, this educational plan will be also updated to support the program changes and expansion to include an Associates of Applied Science option.

Program Information

History and Future Direction

Wyoming's economic foundation is rooted in three sectors; energy, tourism and agriculture (listed in order of industry size). Wyoming's geologic basins contain some of the largest fossil fuel deposits in the United States. Wyoming's estimated recoverable coal reserves are second only to Montana's, its dry natural gas reserves are second only to those in Texas, and its crude oil reserves are substantial. Wyoming has over a dozen of the Nation's largest oil and gas fields.



Source: Leading the Charge Leading the Charge: Wyoming's Action Plan for Energy, Environment and Economy, 2013

Wyoming is one of the top natural gas-producing states in the nation and typically accounts for almost one-tenth of U.S. natural gas production. More than thirty States receive coal from Wyoming, and several Midwestern and Southern States are highly or entirely dependent on Wyoming supply (<http://www.earthlab.com/carbon-footprint/Wyoming-carbon-calculator.aspx>).

Wyoming's economic framework is different than that of the U.S. and many other states. No other state in the Intermountain West is as reliant as Wyoming on energy industries to sustain its economy and tax base (Impacts of Energy Development in Wyoming, Headwaters Economics, 2009) and Wyoming's

economic circumstances fluctuate with mineral prices. Assuming the U.S. economy strengthens and other nations develop their economies, energy use will grow. World energy consumption is expected to grow by 53 percent from 2008 to 2035. The national and international markets will create new opportunities—and challenges for domestic energy to meet this demand. New technologies and markets continue to evolve, and the competitive landscape is changing with new products, synthetic fuels, and gases and liquids being developed from raw energy sources. By staying current with employer needs, ensuring ongoing instructor development and building flexible energy sector training capacity, LCCC will be poised to adapt to the needs of trainees and employers.

Noted previously, the energy industry is a mainstay to Wyoming's economy. A foundational component of the larger energy industry is the process industry. The Process industry is driven by a series of process technologies, most typically the process of transforming crude natural resources into usable energy, fuel, and related products. The State has five petro-chemical refineries, located in the southern and eastern parts of the State; two of the largest are located in LCCC's service area. Thus, this educational business plan details the critical aspects for an accelerated training program in Process Technology.

Documented Need and Future Demand



In response to external requests, LCCC has been working closely with employers in the energy sector, economic development partners, and the Wyoming Refinery Safety Alliance (WRSA) to ascertain the need for this program and its graduates, as well as to develop the curriculum. WRSA alone is conservatively projecting 160 new entry level openings statewide

within the next three years and its membership is also requesting training for incumbent workers annually. Cheyenne Light, Fuel and Power is progressing towards their opening of a new generating station power plant. Upon opening, the plant will need 16 workers immediately who could also benefit from the education provided by this program.

While Wyoming already has a stronghold in the oil and gas industries in this state, as well as a growing demand for a related workforce, it also has immediate needs for education and training. Wyoming as a state has one of the worst safety records nationwide. According to a 2012 article from [www.wyomingnews.com](http://www.wyomingnews.com/articles/2012/01/04/news/20local_01-04-12.txt), Wyoming placed in the top four states for having the highest occupational fatality rates each year in the past decade (www.wyomingnews.com/articles/2012/01/04/news/20local_01-04-12.txt).

Governor Matt Mead is leading the charge to improve that record. The Governor states that workers' industry and fatality rates are unacceptable. He has tasked the refineries and community colleges to form a partnership to develop programming for the process industry where workplace safety was emphasized.

In addition, data indicates that Wyoming mirrors or exceeds national trends in key issues related to workforce demands including an aging workforce and a rural population. Local/regional economic development officials concur that increased educational venues are needed to meet the growing demand for well-qualified workers. There are five refineries in the state and a number of other businesses that rely on similar skills sets for a successful workforce and all show a demand for workers consistently in

the next three years. Businesses indicate a need for more highly skilled process technology operators as well as new employees due to turn-over. Presently, two businesses in the LCCC service area have indicated that they could support approximately 30 new employees at a minimum each year for the next three years in southeast Wyoming alone. The need of the major employers statewide is documented in the table below (data provided directly by the refineries). It's important to note that these projections are conservative and don't include ancillary industries also requiring workers with similar skill sets.

Refinery	Projected Operator Hiring Targets		
	2014	2015	2016
Sinclair			
Sinclair	12	12	11
Casper	3	3	3
Holly Frontier			
Cheyenne	20	20	20
Dyno Nobel			
Cheyenne	10	10	10
Wyoming Refining			
Newcastle	7	7	7
Antelope Refining			
Douglas	1	2	2
Silver Eagle			
Evanston	n/a	n/a	n/a
Total	53	54	53

In addition, statewide O*Net is projecting a 29% increase within just one specific occupation in this industry. Petroleum pump systems operators, refinery operators, and gauges are projected to have 90 job openings yearly in Wyoming (<http://www.careerinfonet.org>).

Wyoming	Employment		Percent Change	Job Openings ¹
	2010	2020		
Petroleum Pump System Operators, Refinery Operators, and Gaugers	821	1,056	+29%	90

¹Job Openings refers to the average annual job openings due to growth and net replacement.

With the growth of the process industry and a highly trained workforce, there will be a positive impact on the community, through potential higher wages as well as better services provided by the workforce and creating a safer work environment for the business involved.

For example, the chart below shows, Petroleum Pump System Operators, Refinery Operators, and Gaugers in Wyoming are paid competitive with national salaries. These salaries provide self-sustainable career opportunities (<http://www.careerinfonet.org>).

Location	Pay Period	2011				
		10%	25%	Median	75%	90%
United States	Hourly	\$18.50	\$23.73	\$29.45	\$34.29	\$39.19
	Yearly	\$38,500	\$49,400	\$61,300	\$71,300	\$81,500
Wyoming	Hourly	\$21.41	\$24.56	\$28.36	\$32.84	\$35.69
	Yearly	\$44,500	\$51,100	\$59,000	\$68,300	\$74,200

Program Details

In cooperation with partners and industry, this program was developed to provide specialized workforce training at three of Wyoming's community colleges; LCCC, Casper College, and Western Wyoming Community College. While the program is accelerated to support immediate industry hiring needs, it is also comprehensive and contains strong safety, electrical, mechanical and quality components.

In order for a student to be accepted into the program, they must first meet the same hiring criteria demanded by industry. This includes successful completion of a background test and drug screen and completion of a Wyoming Career Readiness Certificate (CRC.) A CRC is a credential showing that the holder possesses the fundamental skills required to achieve success in the workplace and to become a productive, valuable employee. Applicants who achieve a silver level of a Career Readiness Certificate demonstrate that they possess relevant workplace skills and abilities.

The Wyoming Career Readiness Certificate will help ensure participants possess the basic skills needed to succeed in the various training opportunities. If participants don't possess these skills, their pathway would begin with basic skill development training.

The LCCC program has an active advisory committee including strong partnerships with industry and local businesses. A list of the committee is included in the appendices along with meeting minutes. As a result of these associations, while the program will be aligned statewide, it can also be customized to specifically meet the needs of refineries in southeast Wyoming and LCCC's service area.

The Process Technology program will provide participants with customized and valuable skills which will put them in line for employment, career advancement and potential increases in wages. The program, which was developed in partnership with industry and grounded in the Center for Advancement of Process Technology (CAPT) curriculum, will earn students 17 college credits and a Certificate of Completion. CAPT supports the development of a highly skilled, educated and diverse process technician workforce for the chemical manufacturing, refining, oil and gas production, and pharmaceutical manufacturing industry sectors.

The Center is a national collaboration between education and industry in eight partner alliances in its commitment to process technology education: Alaska Process Industry Careers Consortium, Gulf Coast

Process Technology Alliance, Greater New Jersey Process Technology Alliance, Louisiana Process Technology Alliance, Great Lakes Process Technology Alliance, North West Process Technology Alliance, Rockies Alliance for Process Technology, and Southern California Chemical Technology Alliance.

The 17 credits can also be applied to an anticipated Associates of Applied Science degree in Process Technology. As noted earlier, upon evaluation successful outcomes, the College will seek permanent status for the certificate program as well as approval for an Associate of Applied Science program.

The initial thrust of this project will be to meet current skill training needs of year one workers. With regional occupational year two and year three projections provided directly from industry, coupled with the current demographics of an aging state/local workforce, it is anticipated that this occupation could readily absorb 30 graduates in southeast Wyoming alone.

The program’s learning outcomes are influenced by specific knowledge-areas required for these occupations. These have been identified through O*Net and confirmed by local employers. They represent broad skills required by industry with public safety and security being of utmost importance.

- Mechanical — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.

17 Credit Hour Program

From information gathered from CAPT and LCCC’s local industries partners, the following program curriculum was developed. Course descriptions are provided in Attachment E: The WWCC Request for Certificate Program.

LCCC Process Technology Certificate Program

INTRODUCTION TO PROCESS TECHNOLOGY CERTIFICATE		
Course Number	Course Title	Credit Hours
PTEC:1500	An Introduction to Process Technology <ul style="list-style-type: none"> • (with a special introduction to safety and continuous quality improvement) 	2
PTEC:1510	Safety, Health and the Environment <ul style="list-style-type: none"> • (with OSHA 10, H2S and LOTO training and related certifications) 	4
IST:1730	Electrical Fundamentals	2
IST:1830	Mechanical Fundamentals	2
PTEC:1600	Process Technology 1: Equipment	3
PTEC:1605	Process Technology 2: Systems	3
PTEC:1550	Principles of Quality	1
Total		<u>17</u>

New Courses

The following are course descriptions for each new course in the program (include prefix, course number, title, credit hours and description):

PTEC: 1500: – Introduction to Process Technology, 2 credits

Students gain a basic understanding of the process technology industry by exploring operator roles, responsibilities and expectations, plant terminology, safety and environmental responsibilities, applied organic and inorganic chemistry, applied physics, plant equipment, utility systems; product handling, flow diagrams, general process overviews, basics of process control, and plant organizations. Students receive an overview of the content in the process technology coursework including the mental and physical requirements of a Process Technician career.

IST: 1730: Electrical Fundamentals for Process Technology, 2 credits

Students examine direct current theories and applies those to the electrical system and related equipment. Students also explore basic DC circuit calculations. They cover basic alternating current theories and apply those theories to electrical systems and related equipment. Students demonstrate various methods of producing a voltage and study essential generator and motor design, construction and operating principles.

IST.1830: Mechanical Fundamentals for Process Technology, 2 credits

Students explore the mechanical concepts commonly found in a plant setting. They examine piping systems including dimensions, connections, blinding and more. Students become familiar with common hand tools and terminology found in many plants. They examine steam traps, strainers and their applications. They are also introduced to common pumps and drivers, compressors and fans and heat exchangers.

PTEC: 1510 – Safety, Health and the Environment, 4 credits

Students explore the history of industrial accidents and other impactful incidences. They complete content required to receive an OSHA 10 certification. Students also examine safety, health and environmental issues and analyze the skills needed for communication of good safety habits and safe work practices.

PTEC: 1550 – Principles of Quality, 1 credit

Students define quality and trace the rebirth of quality in the United States. Students also examine and outline several philosophies of quality including Deming's, Juran's and Crosby's works. They examine models that positively affect workplace effectiveness and explain the purpose, benefits, policies and procedures that must be in place to receive ISO 9000 certification.

PTEC: 1600 – Process Technology I – Equipment, 3 credits

Students describe equipment used and demonstrate their operations. Students describe the appropriate uses of basic hand, power and sparking and non-sparking tools. Students demonstrate hand and power tool safety and appropriate care.

PTEC: 1605 – Process Technology II – Systems, 3 credits

Students describe how process industry facilities are divided into systems. They identify the types of systems used in the process industries, describe the purpose of each of these systems and identify safety, health and environmental issue concerns associated with various systems.

LCCC's School of Business, Agriculture and Technical Studies is well-equipped to provide the outlined training. Dave Curry serves as the Manager of Technical Students Program Development and led the effort to implement the current HVAC program, through assistance from the State Energy Sector Partnership (SESP) grant, including the installation of a state-of-the-art laboratory. Mr. Curry's background is also in safety and recognizes the need for the highest quality training that will be aligned with industry needs to ensure a strong workforce. During the pilot phase, in addition to Mr. Curry, adjunct instructors will be the primary instructors. Industry will be providing subject matter experts to serve as adjuncts in the specialized areas. No new full time faculty will be sought during the pilot phase. A grant from the Wyoming Department of Workforce Services will pay all tuition, instructor, marketing and ancillary fees for the first two cohorts of 34 total students.

The student-to-instructor ratio for the training will be approximately 17:1. Noted above, the instruction will be in partnership with LCCC and a minimum of two regional business partners. Using the successful Center for Advanced Process Technology (CAPT) program as the model, LCCC believes this program will provide a curriculum tailored directly to what industry requires.

LCCC keeps in close contact with its business partners, including hosting program advisory committee meetings twice a year (generally fall and spring) with informal contacts occurring throughout the year. However, during the initial launch of the Process Technology training, it is anticipated that the program advisory committee will meet monthly to ensure training outcomes align with the most current business needs and to conduct formative evaluation of the program's coursework. In addition, in partnership with one of our business partners, current employees will "audit" the training program to assess the curriculum and delivery in detail and while being delivered. This concept will help ensure continuous quality improvement.

The competency levels of participants are monitored throughout the program with both written and hands-on assessments

Recruitment Plan

Business representatives on LCCC's Process Technology Advisory Committee expressed support for a training program as a vehicle to ensure a skilled incoming workforce. These same business partners have also expressed agreement with the need for training for incumbent workers. The recruitment plan for the initial cohorts of the LCCC Process Technology program will be through current and ongoing contacts with local businesses along with a strong marketing campaign which will include electronic billboards, newspaper advertising and social media venues. This approach will meet what has been identified as an immediate critical need, and initial response from prospective students is promising. The College will continue to monitor the needs of regional industry for both incumbent workforce training and growth

requiring additional new hires. The College maintains a strong relationship with the local Wyoming Department of Workforce Services local Workforce Center and will provide informational and recruitment materials to the Center as appropriate.

Student Selection Process

The LCCC Process Technology program, at least during its pilot stage, will be a limited entry program. It is limited to ensure LCCC is aligned with the documented hiring needs of industry. To be selected for the program, all potential students – currently limited to Wyoming anticipated new-hire workers - must:

- 1) Complete an LCCC application including residency information;
- 2) Complete a Wyoming Career Readiness Certificate at a silver level or higher;
- 3) Complete both a drug and background test;
- 4) Complete an interview with selected members of the advisory committee.

Because the Wyoming Department of Workforce Services is funding the first two cohorts and LCCC wants to ensure graduation rates align with employer hiring needs, these cohorts have limited enrollment as noted above. In addition, industry has agreed to screen potential applicants and require LCCC's participant selection be based on the hiring requirements of the business partners.

Post-Training Job Placement Process

Upon completion of the training, each business partner has agreed to provide guaranteed interviews to successful and selected students in conjunction with their hiring demands.

Partnerships

Two local employers, Holly-Frontier and Dyno Nobel, along with direction from a representative from Cheyenne Light, Fuel and Power, all participate in the Process Technology Advisory committee and provide guidance on program direction. In addition, LCCC has been working closely with Casper College, Western Wyoming Community College and the Wyoming Refinery Safety Alliance (WRSA) to align curriculum that supports refineries statewide.

The College maintains strong contact with the local workforce center and the Department of Workforce Services to help ensure job placement, as necessary, upon completion of the training. LCCC also partners with Cheyenne Leads (the regional economic development entity) to ensure the project is meeting local/regional economic development needs.

Projected Pilot Program Budget

Costs and Revenue

During the pilot program year, it is anticipated this program year, it is anticipated that this program will yield 30 graduates out of 34 students. Each student would complete 17-credit hours in the accelerated format. As noted earlier, participating students will have all costs including tuition, instructor fees, books, and related materials covered through a grant from the Wyoming Department of Workforce Services. This revenue is anticipated to cover all direct expenditures of offering the program. All needed equipment, not already housed at LCCC, will be provided by the partnering businesses. This allows LCCC a year to evaluate program quality, need, and economic impact before requesting permanent status. A pro-forma five year start-up and operating budget is shown on the following page.

Closing

In summary, while Process Technology is an accelerated start-up program and requires a rapid approval turn-around to meet current needs. It serves as a model for meeting industry needs efficiently well into the future. This pilot program, fully funded through a workforce development grant and donations from industry, minimizes initial costs for the College, while providing the time to evaluate on-going need, program quality and justification for permanent addition to the College's program portfolio.

It is anticipated that this Process Technology Certificate Program will immediately serve industry and community demands and improve the skills of Wyoming's workforce.

Program 5 Year Start-up and Operating Budget

Proposed Program:										
Program name Process Technology Certificate										
	Year 1		Year 2		Year 3		Year 4		Year 5	
	FY14		FY15		FY16		FY17		FY18	
Estimated ENROLLMENT										
FTE Enrollment	24		24		24		24		24	
Estimated Incremental REVENUE										
Use of Current General Operating Funds										
State Funding for Student FTE	-		81,621		81,621		81,621		81,621	
Tuition Revenue										
A. Gross Incremental Tuition Revenue	-		41,184		41,184		41,184		41,184	
B. Reductions to Incremental Tuition	-		-		-		-		-	
C. Net Tuition Revenue (A-B)	-		41,184		41,184		41,184		41,184	
Program/Course Fees (\$100/student FTE)	2,400		2,400		2,400		2,400		2,400	
External Funds (DWS Grant towards tuition, salaries and student fees)	64,634		-		-		-		-	
Other Funds (please specify):			-		-		-		-	
TOTAL	67,034		125,205		125,205		125,205		125,205	
Estimated Incremental Revenue										
Estimated Incremental EXPENDITURES										
Personal Services	FTE	Cost								
Faculty/Staff (Curry)	0.25	18,250	0.25	18,250	0.25	18,798	0.25	19,361	0.25	19,361
Adjunct/Staff	3	23,799	3	24,513	3	25,248	3	25,248	3	25,248
Operating Expenses	16,722		20,000		20,600		21,218		21,855	
Equipment	-		-		-		-		-	
Start-up Expenditures	-		-		-		-		-	
TOTAL	58,771		62,763		64,646		65,828		66,464	
Estimated Incremental Expenditures										
Estimated Revenues Over/(Under) Expenditures	8,263		62,442		60,559		59,377		58,741	

Attachments

1. Joan Evans Letter
2. Holly-Frontier Letter
3. Dyno Nobel Letter
4. Advisory Committee and Minutes
5. WWCC Program Request



Matthew H. Mead
Governor

State of Wyoming
Department of Workforce Services

Office of the Director
122 W. 25th Street, Herschler 2-East
Cheyenne, Wyoming 82002
307.777.8650 • Fax: 307.777.5857
www.wyomingworkforce.org



Joan K. Evans
Director
Lisa M. Osvold
Deputy Director

December 13, 2012



Dr. Joe Schaffer, President
Laramie County Community College
1400 E. College Drive
Cheyenne, WY 82007

Dear Dr. Schaffer:

I am very pleased to hear that your college is considering the proactive process of providing a program of study regarding Process Technology and Plant Operations for students and workers from industry. It is my understanding that an emphasis of the program is health and safety. As you may know, the OSHA Division resides within our Department and has the responsibility of ensuring the health and safety of Wyoming workers.

It is also my understanding that members of your staff have begun collaborating with representatives of Wyoming OSHA to foster a proper curriculum for these possible courses. Please know that I fully support this type of initiative at any and all educational institutions, and that staff from OSHA are willing to provide advice or resources as necessary to ensure success for this endeavor, in an advisory capacity or otherwise.

Safety training is being enhanced in other community college training programs for employees from industry, or students that have resolved to work in industry. Taken as a whole these efforts will have a profound impact on the health and safety of the Wyoming workforce. Thank you for your consideration in this matter, and please contact me at 307.777.8728 if you have questions or need additional information.

Sincerely,

Joan K. Evans
Director

JKE:cs

Cc: Mike Todd, Deputy Administrator – OSHA
File Ref: JKE-12-082



We Bridge Human and Economic
Development for Wyoming's Future.





Thursday, May 16, 2013

Dr. Joe Schaffer, President
Laramie County Community College
1400 East College Drive
Cheyenne, WY 82007-3204

Dear Dr. Schaffer:

Holly Frontier is pleased to be a partner with Laramie County Community College in the effort to secure Workforce Development Training Funds to assist individuals desiring to enroll in a new Process Technology approximate 11-week training program at the College.

We recognize a need for well-trained individuals in all areas of the industry, most particularly with a strong safety component, and look forward to collaborating with the College in the implementation of this in-depth program for entry level workers. Current estimates indicate that within the next year, approximately thirty employees will be needed due to turn-over and skilled workers are in high demand. We are particularly looking for individuals with skills in the following areas:

- **Electrical Fundamentals for Process Technology**
- **Mechanical Fundamentals for Process Technology**
- **Safety, Health and the Environment**
- **Process Technology: Equipment**
- **Process Technology : Systems**

We appreciate Laramie County Community College's efforts to meet the workforce development needs of our region. As a company, we will provide interviews for selected students, offer guidance during curriculum development, suggest ideas for program improvement and provide "boneyard" equipment, as available, for hands-on learning.

Sincerely,

A handwritten signature in blue ink that reads 'Kevin D. Burke'.

Kevin Burke
Holly Frontier

Frontier Refining LLC

P.O. Box 1588 • Cheyenne, WY 82003-1588
(307) 634-3551 • Fax (307) 771-8794
<http://www.hollyfrontier.com>

Attachment C: Dyno Nobel

Dyno Nobel
8305 Otto Road
Cheyenne, WY 82001

Thursday, May 09, 2013

Dr. Joe Schaffer, President
Laramie County Community College
1400 East College Drive
Cheyenne, WY 82007-3204

Dear Dr. Schaffer:

Dyno Nobel is pleased to be a partner with Laramie County Community College in the effort to secure Workforce Development Training Funds to assist individuals desiring to enroll in a new Process Technology approximate 11-week training program at the College.

We recognize a need for well-trained individuals in all areas of the industry, most particularly with a strong safety component, and look forward to collaborating with the College in the implementation of this in-depth program for entry level workers. Current estimates indicate that within the next year, approximately ten employees will be needed due to turn-over and skilled workers are in high demand. We are particularly looking for individuals with skills in the following areas:

- **Electrical Fundamentals for Process Technology**
- **Mechanical Fundamentals for Process Technology**
- **Safety, Health and the Environment**
- **Process Technology: Equipment**
- **Process Technology : Systems**

We appreciate Laramie County Community College's efforts to meet the workforce development needs of our region. As a company, we will guarantee interviews for program graduates, and offer guidance during curriculum development.

Sincerely,



Douglas Chandler
Plant Manager, Dyno Nobel

Attachment D: Advisory Committee Members and Minutes

Name of Group: LCCC Process Technology Advisory Board

Goal/Purpose of Meeting: Establish this Advisory Board

Date/Time: Tuesday, April 30, 2013 / 5:00 p.m. – 7:00 p.m.

Location: CCC 178 (Dinner provided at Sodexo Dining Hall)
Curry

Recorder: Darlene Kaelin



Chairperson: Dave

Attendees (12):

Michael **Broad**, U.S. Department of Labor

Kevin **Brown**, Holly Frontier Refinery

Dave **Curry**, LCCC

Steve **Dann**, DynoNobel

Stuart **Engen**, Holly Frontier Refinery

Franklin **Favero**, LCCC

Mark **Foote**, Holly Frontier Refinery

Rob **Morris**, Cheyenne Light Fuel & Power

Catherine **Redlich**, Wyoming Department of Workforce Services

Maryellen **Tast**, LCCC

Stan **Torvik**, LCCC

George **Zak**, Wyoming Department of Workforce Services

Documents Distributed at Meeting:

- WY Community College Commission Request for New, Pilot or Revised Degree or Certificate revision 7/11/12
- Registered Apprenticeship flyer
- *What is Registered Apprenticeship?* from the website www.doleta.gov
- Apprentices Work Processes document

Topic	Discussion	Action	Person (s) Responsible
Board Purpose	<p>This is a brand new program and LCCC is seeking assistance from subject matter experts to determine curriculum to meet the needs of the industry.</p> <p>LCCC plans to dedicate a lab area for process technology and to obtain the equipment experts deem appropriate for training</p>	<p>Review and approve curriculum.</p> <p>Provide advice regarding equipment needed for training.</p>	All Board Members

	<p>students. Perhaps industry could donate old equipment from their "boneyards."</p> <p>Instructors who are subject matter experts are needed. Are there retirees from the industry who would be interested? Stuart said some techs and service engineers might be willing to fill this role, but using the same instructors over and over again makes them susceptible to "burn out."</p> <p>Stan said although classes are held all day, it would not be all day for every instructor. We can modify curriculum to suit instructor's schedules.</p> <p>Mark said Holly Frontier has recently hired a group of trainers. Perhaps some of them could attend the program. A Train the Trainer course might be a good idea. Could the trainers be used as adjunct faculty?</p>	<p>Help find adjunct instructors.</p> <p>Meet on a regular basis to continually improve the program. (Once a month until program is up and running in August 2013.)</p>	
<p>Program Status</p>	<p>LCCC is proposing a two tier Process Technology program. The first tier is an 11-week program designed for an introduction to the industry. The second tier is an Associate in Applied Science degree in an accelerated 17-month program (64 total credits). Students would attend courses from 8:00 a.m. to 4:00 p.m. every week day, with variety built into the schedule. It is fast paced and students would need to treat it as a full time job.</p> <p>LCCC is pursuing a 1-year DWS "Pre-Hire" grant. This grant would pay for instructors, tuition & fees, books, and materials. We want to submit the grant by May 15, 2013. We have received pre-approval for the grant, but it takes 90 days to process through DWS, so we're anticipating formal approval by July 15. That leaves only a month before startup of training.</p> <p>For the grant purposes we must show that we have community support. LCCC will draft a letter for businesses to sign. Would like to have this done within the next two weeks.</p> <p>LCCC is partnering with Casper College and Western Wyoming Community College. Casper and Western already have some programs in place with like topics. We need to align the programs.</p> <p>We would like to fill the first cohort of students with people who are being considered for hire by industry.</p> <p>Holly Frontier may consider sending a seasoned operator through the course.</p> <p>The maximum number of students accepted into the program is 15. We may accept a few over that to allow for attrition.</p> <p>Between now and August 2013 we don't have much time to recruit. We are going to premarket, but it won't be as aggressive as it would typically be. We will ask for help from DWS. The pre- hire grant will allow us to prescreen students</p>	<p>Have program operational and students in place by August 2013.</p> <p>Guarantee job interviews to students completing the training.</p> <p>Obtain approval for LCCC to use company logos in marketing efforts.</p> <p>Draft letter for businesses to show community support for the grant and deliver to businesses for signatures within the next 2 weeks.</p>	<p>LCCC</p> <p>Industry Partners</p> <p>Holly Frontier & DynoNobel</p> <p>LCCC</p>

	<p>using WorkKeys testing, background checks and drug testing.</p> <p>It would make marketing efforts more powerful if we could advertise guaranteed interviews with businesses.</p> <p>Dave asked if LCCC could use logos (branding) of DynoNobel and Holly Frontier in our marketing efforts. Formal approval from companies would be needed.</p>		
<p>Review of Curriculum</p>	<p>Dave distributed an outline of the proposed curriculum. He pointed out that arc flash is not included in the curriculum. He asked if the group thought it was necessary. It was suggested that it be included as a safety topic, along with lock out tag out. At the operator level, other than resetting breakers, they do not work with high voltages past 2300, but it would be helpful for different classes to be part of the discussion.</p> <p>Confined space should be included.</p> <p>Maryellen said that the majority of what is contained in the curriculum came from P-Tech in Tulsa, OK. She also had input from state OSHA and Rob at Holly Frontier.</p> <p>Material Safety Data Sheets should be a topic.</p> <p>Dave considers OSHA 10 the foundational course and everything else builds on that.</p> <p>The group did not see a need for training on DOT shipping.</p> <p>Basics of following simple procedures should be embedded in all topics.</p> <p>Dave said he will email the curriculum document that contains more detailed descriptions and objectives to each board member.</p> <p>The curriculum currently spans more than 11 weeks. Subject matter experts will need to scale it down. Dave showed an example of just one topic from the curriculum, which filled a 4" binder.</p> <p>Assessment is critical. We must assess the curriculum as we go through the program and then assess the student when they enter the workplace. We will modify the curriculum as needed.</p> <p>This training should not be specialized to a certain company, but rather provide a general overview of the industry.</p> <p>This program could fulfill the 3 year recurring training required by some companies.</p> <p>Visual aids would be good. Actually have a pump that students can cut apart. Actual hands on training.</p> <p>Students would tour a facility as part of their training and would be assigned a capstone project.</p> <p>This will be blended training of online and classroom.</p>	<p>Email detailed curriculum to board members</p>	<p>Dave Curry</p>

	<p>Mark said students must be able to read and understand a PNID (piping and instrumentation diagram) and a mechanical drawing. Process operators by nature are unique individuals. A good process operator will possess mechanical skills.</p> <p>Could this course be brought to the refinery? Yes, LCCC can customize training for specific needs. Maryellen said the curriculum is public domain and can easily be customized.</p>		
<p>Apprenticeships</p>	<p>Michael Broad distributed two handouts describing <i>Registered Apprenticeship</i> and proceeded to discuss the various aspects of the program.</p> <p>She discussed aligning apprentices to a progressive wage schedule. Stuart said he would want the union involved in that. Michael said she has worked with programs where the union is involved. There are different scenarios, and it can be worked out.</p> <p>Stuart said he appreciates the structure of the apprenticeship program.</p> <p>Michael said a Work Process Schedule is required to document on-the-job learning. There is not currently a Work Process Schedule approved for a Process Technology occupation, so Michael put together a list of existing Work Process Schedules for similar occupations. A copy of the list document is attached to these minutes and incorporated herein by reference. These existing Work Process Schedules may be used as a template for Process Technology.</p> <p>Dave said LCCC opens up a lab one night a week for 3 hours for apprentices. They attend these labs for 4 years and feedback has been positive.</p>		
<p>Final Thoughts</p>	<p>This program will definitely help with safety aspects, which is actually the driving force behind it.</p> <p>Catherine is excited about this program. The more people we can get trained, the better.</p> <p>George is also excited about this program. He said his office is pleased to be part of the collaborative team. The bottom line is to provide better employees for the industry.</p> <p>Mark said Holly Frontier has a big ability to positively affect the Cheyenne community. They've hired 23 people in last 4 months. In the future, they will need a more technical workforce.</p> <p>Maryellen said this program is a work in progress. It will be a quality program because LCCC accreditation requires quality programs.</p> <p>Stan said LCCC Workforce has started dozens of programs and we will make mistakes, but we also fix them quickly.</p> <p>Rob said this meeting has been encouraging to him because CLF&P is building their own power plant and will need to hire</p>		

	<p>quality trained staff.</p> <p>Frank said he has 40+ years of experience in the industry and he is eager to apply his experience to the training of future employees.</p> <p>Steve is excited about the program because he expects it to help with his hiring process to save him time.</p> <p>Dave said he is excited about local people being trained so that industry does not have to hire out of state. Any questions for Dave, please email him at dcurry@lccc.wy.edu</p>		
Facility Tour	Dave provided a tour of the IST/Wind Lab Facilities	Tour of LCCC lab facilities	Dave Curry

Topics for Next Meeting:

- Syllabi
- Equipment

Attachment E: WCCC Request for Certificate Program

Wyoming Community College Commission
Request for
New, Pilot or Revised Degree or Certificate Program

- A. **College:** Laramie County Community College
- B. **Date** submitted to WCCC:
- C. **Program**
 - 1. Request for:
 New Program Pilot Program Revised Program
 - 2. **Program Title:** Process Technology Certificate
 - 3. Degree or Certificate to be awarded:
 Degree: AA AS AAS Other
 Certificate
 - 4. Educational Pathway:
 Energy Construction Hospitality Technology Health Care
 other
 - 5. Total number of credit hours:
Option One: Process Technology Entry Level Certificate: 17
 - 6. **Suggested CIP (Classification of Instructional Program) code (6-digit):**
 - 7. Planned semester/year new program will begin: Fall 2013
 - 8. Will any part of this program be provided by non-accredited vendor(s)?
 YES (Provide details) NO

D. Program description as it will be included in college catalog:

The Process Technology Program of Study is designed to provide students with the skills and conceptual knowledge needed to enter careers as Process Technicians/Operators in the petrochemical and related industries.

Process Technology will begin as an accelerated 11-week program designed for an introduction to the industry. Students develop awareness of the work environment, safety and continuous quality improvement issues and equipment and systems used. They gain an understanding of the basic skills needed for entering the petrochemical and related industries.

Students must successfully complete a Workkeys Math assessment at level four and other required assessments, as determined by industry, before entering the program. Students must consult with their advisor before program acceptance to learn more about program entry process and requirements.

1. Program Layout by Semester (based, in part, on the Center for Advanced Process Technology (CAPT) curriculum)

INTRODUCTION TO PROCESS TECHNOLOGY CERTIFICATE (accelerated 11 weeks)		
Course Number	Course Title	Credit Hours
PTEC:1500	An Introduction to Process Technology <ul style="list-style-type: none">(with a special introduction to safety and continuous quality improvement)	2
PTEC:1510	Safety, Health and the Environment <ul style="list-style-type: none">(with OSHA 10, H2S and LOTO training and related certifications)	4
IST:1730	Electrical Fundamentals	2
IST:1830	Mechanical Fundamentals	2
PTEC:1600	Process Technology 1: Equipment	3
PTEC:1605	Process Technology 2: Systems	3
PTEC:1550	Quality	1
Option 1 Total		<u>17</u>

E.

Will all or part of this program be available to students via online or other distance education technologies?

 At the start of the program? x Within three years of the start of the program?

E. New course prefixes:

1. Recommended Level of Instruction if the community college is using a new course prefix:

 No new community college prefixes

 No new state-wide prefixes

 x **Suggested new prefix:** PTEC

 3 Suggested level of instruction for a new prefix. (1, 2, or 3)

2. New Course prefixes, numbers and titles have been coordinated:
with UW (transfer) Yes No x Not Applicable
or WCCC (career technical) Yes No x Not Applicable

F. New Courses

The following are course descriptions for each new course in the program (include prefix, course number, title, credit hours and description):

PTEC: 1500: – Introduction to Process Technology, 2 credits

Students gain a basic understanding of the process technology industry by exploring operator roles, responsibilities and expectations, plant terminology, safety and environmental responsibilities, applied organic and inorganic chemistry, applied physics, plant equipment, utility systems; product handling, flow diagrams, general process overviews, basics of process control, and plant organizations. Students receive an overview of the content in the process technology coursework including the mental and physical requirements of a Process Technician career.

IST:1730: Electrical Fundamentals for Process Technology, 2 credits

Students examine direct current theories and applies those to the electrical system and related equipment. Students also explore basic DC circuit calculations. They cover basic alternating current theories and apply those theories to electrical systems and related equipment. Students demonstrate various methods of producing a voltage and study essential generator and motor design, construction and operating principles.

IST.1830: Mechanical Fundamentals for Process Technology, 2 credits

Students explore the mechanical concepts commonly found in a plant setting. They examine piping systems including dimensions, connections, blinding and more. Students become familiar with common hand tools and terminology found in many plants. They examine steam traps, strainers and their applications. They are also introduced to common pumps and drivers, compressors and fans and heat exchangers.

PTEC: 1510 – Safety, Health and the Environment, 4 credits

Students explore the history of industrial accidents and other impactful incidences. They complete content required to receive an OSHA 10 certification. Students also examine safety, health and environmental issues and analyze the skills needed for communication of good safety habits and safe work practices.

PTEC:1550 – Principles of Quality, 1 credit

Students define quality and trace the rebirth of quality in the United States. Students also examine and outline several philosophies of quality including Deming's, Juran's and Crosby's works. They examine models that positively affect workplace effectiveness and explain the purpose, benefits, policies and procedures that must be in place to receive ISO 9000 certification.

PTEC:1600 – Process Technology I – Equipment, 3 credits

Students describe equipment used and demonstrate their operations. Students describe the appropriate uses of basic hand, power and sparking and non-sparking tools. Students demonstrate hand and power tool safety and appropriate care.

PTEC:1605 – Process Technology II – Systems, 3 credits

Students describe how process industry facilities are divided into systems. They identify the types of systems used in the process industries, describe the purpose of each of these systems and identify safety, health and environmental issue concerns associated with various systems.

G. Can this program be delivered by current faculty? No. If not, what are the plans, budget and timeline for bringing on needed instructors?

To develop this program of study, LCCC, Casper College and Western Wyoming Community College (WWCC) collaborated with industry experts including representatives from Holly-Frontier, Sinclair, Wyoming OSHA and utilized projected hiring targets and industry needs from Dyno Nobel, Wyoming Refining, Antelope Refining and Silver Eagle. For LCCC, the delivery of the pilot curriculum can be completed using a current career

and technical faculty member who would serve as a coordinator during the pilot period and industry experts serving as adjunct faculty. However, management and delivery of the permanent program of study will require a full time faculty member. This would be requested simultaneously when the program goes before the Community College Commission for permanent program status. After the pilot program has been analyzed and updated based on industry needs, a full time position will be requested during the 2014-2015 budget period.

H. Summary of input from and coordination with citizens, business and industry or k-12 education:

In addition to LCCC, Casper College and WWCC, the Process Technology Program of Study and its related curriculum was developed in collaboration with the statewide Process Technology safety group comprised of industry experts statewide, Wyoming OSHA, Holly-Frontier, Tulsa Community College and utilizing curriculum components designed by industry experts for the Center for Process Technology (CAPT).

CAPT supports the development of a highly skilled, educated and diverse process technician workforce for the chemical manufacturing, refining, oil and gas production, and pharmaceutical manufacturing industry sectors.

The Center is a national collaboration between education and industry in eight partner alliances in its commitment to process technology education: Alaska Process Industry Careers Consortium, Gulf Coast Process Technology Alliance, Greater New Jersey Process Technology Alliance, Louisiana Process Technology Alliance, Great Lakes Process Technology Alliance, North West Process Technology Alliance, Rockies Alliance for Process Technology, and Southern California Chemical Technology Alliance.

I. Resources required to start and sustain the program and the current plan to meet those resource needs through college or other external funds:

This program is based on the standard components set forth by Center for Advanced Process Technology with input from Wyoming industry experts. To launch this program, the Integrated Systems Technology lab along with other content specific equipment will be required. Industry has committed to providing "boneyard" equipment for program delivery along with site utilization for possible job shadowing, internships, tours and other training requirements.

J. Projected demand in Wyoming and Nation for five years from the proposed implementation date (career technical programs):

While nationally, the trend for Process Technicians/Operators is declining, the need in Wyoming and surrounding areas is increasing. Industry representatives are estimating new hire targets of a conservative 53 in 2014, 54 in 2015 and 53 in 2016 in Wyoming.

The breakout by Refinery is as follows:

Refinery	Projected Operator Hiring Targets		
	2014	2015	2016
Sinclair			
Sinclair	12	12	11
Casper	3	3	3
Holly Frontier			
Cheyenne	20	20	20
Dyno Nobel			
Cheyenne	10	10	10
Wyoming Refining			
Newcastle	7	7	7
Antelope Refining			
Douglas	1	2	2
Silver Eagle			
Evanston	n/a	n/a	n/a
Total	53	54	53

According to the Bureau of Labor Statistics, Wyoming is second in the nation for the highest concentration of jobs and location quotients in this occupation.

States with the highest concentration of jobs and location quotients in this occupation: State	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Louisiana	6,380	3.47	10.70	\$29.56	\$61,480
Wyoming	890	3.25	10.04	\$28.48	\$59,230
Alaska	690	2.20	6.80	\$38.33	\$79,730
Oklahoma	2,080	1.39	4.29	\$24.95	\$51,890
New Mexico	1,080	1.39	4.28	\$30.05	\$62,510

Source: Bureau of Labor Statistics <http://www.bls.gov/oes/current/oes518093.htm>

1. State and National Trends

United States	Employment		Percent Change	Job Openings ¹
	2010	2020		
Petroleum Pump System Operators, Refinery Operators, and Gaugers	44,200	38,000	-14%	1,440
Wyoming	Employment		Percent Change	Job Openings ¹
	2008	2018		
Petroleum Pump System Operators, Refinery Operators, and Gaugers	570	600	+6%	20

¹ Job openings refer to the average annual job openings due to growth and net replacement.

Source: Occupational Information Network (O*NET OnLine),
<http://online.onetcenter.org>

Other trend information that would assist the Commission:

The information provided for demand are modest estimates and do not take into account existing employees taking this program of study for professional development and/or recertification purposes and students coming from in from out of state.

State and National Wages

Location	Pay Period	2011				
		10%	25%	Median	75%	90%
United States	Hourly	\$18.50	\$23.73	\$29.45	\$34.29	\$39.19
	Yearly	\$38,500	\$49,400	\$61,300	\$71,300	\$81,500
Wyoming	Hourly	\$21.41	\$24.56	\$28.36	\$32.84	\$35.69
	Yearly	\$44,500	\$51,100	\$59,000	\$68,300	\$74,200

Source: Occupational Information Network (O*NET OnLine),
<http://online.onetcenter.org>

Other wage information or comments that would assist the Commission:

Students possessing a Process Technology certificate are positioning themselves for career pathways in the Process Technology and related industries, thus increasing salaries.

2. Primary student audience identified for this program:

For LCCC, we anticipate targeting several different groups within the community, including incumbent workers who are currently in the process technology field and want to or are required to expand their knowledge; those that are seeking advancement opportunities; displaced workers desiring retraining; poverty-to-self-sufficiency training programs; and high school graduates who are interested in technical fields.

3. Anticipated enrollment in the three academic years after WCCC approval (unduplicated headcount) with the basis for the estimate:

Basic Certificate:

 17 Year One 17 Year Two 30 Year Three

Associate of Applied Science Degree:

 Year One Year Two Year Three

The program is being launched in a tight time frame after final approvals. The first two cohorts will be fully funded by the Wyoming Department of Workforce Services. Therefore, it is anticipated that it will pilot with 17 in the basic program fall 2013 and another cohort of a minimum of 17 students will be realized spring 2014.

K. Student recruitment and program marketing strategies to attract the broadest range of individuals for this particular program:

The community colleges will utilize industry contacts in process technology to identify and recruit students currently in the workforce who need to update their skills. Industry partners are very supportive and have committed to referring students to the community colleges. We plan to market to Department of Workforce Services, high school counselors and students, veterans and transitioning military personnel, poverty to self-sufficiency programs and other displaced workers.

In addition, a full marketing campaign if needed, will be designed for this program that would include: Website, Facebook, and other social media venues, college marketing venues such as television stations, press releases, radio interviews and other areas as identified by the respective public relations departments.

L. Identification of similar programs at Wyoming Community Colleges and an overview of results **of discussions with faculty and administrators** at the relevant colleges regarding curriculum and possible joint projects:

There are no other similar programs in Wyoming. However, the goal would be to have the same curriculum at any community college that supports a refinery with appropriate hiring demand in their respective area. Utilizing a national curriculum model makes the curriculum consistent not only statewide but across many of the programs throughout the country.

Wyoming Community College Programs (as of 2013)

	Program Title	Degree/ Certificate	Number of Credit Hours
Casper College	N/A	N/A	N/A
Central Wyoming College	N/A	N/A	N/A
Eastern Wyoming College	N/A	N/A	N/A
Laramie County Community College	N/A	N/A	N/A
Northwest College	N/A	N/A	N/A
Northern Wyoming Community College District	N/A	N/A	N/A
Western Wyoming Community College	N/A	N/A	N/A

M. Note available program and course articulations with other likey transfer institutions in the region, particularly for transfer AA and AS program. (Note regional Bachelor of Applied Science transfer options in addition to UW.)

This program is not designed for transfer.

N. When appropriate, note partnerships with business, industry, associations or agencies that have contributed to the design of the proposed program and/or who will contribute to the delivery of the program.

LCCC, Casper College and WWCC have met with employees from Holly-Frontier, Sinclair, and Wyoming OSHA and have also participated in conference calls with the Process Technology safety group in Wyoming where representatives from Sinclair, Holly Frontier, DynoNobel, Wyoming Refining, Antelope Refining and Silver Eagle were present. These professionals have provided input for content needed within this program, feel there is a need in our state, and have offered to be guest speakers and/or instructors for topics throughout the program.

O. Assessment of student learning and completer follow-up per performance indicators. How will the assessment outcomes be used to assure student learning and improve the program?

The competencies listed on the following page will be assessed by subject matter experts/faculty utilizing classroom discussion, quizzes, exams, hands-on exercises, and workplace application projects. Results of these assessments will be analyzed and evaluated by faculty and an advisory committee and used towards program improvement.

In addition, a post-placement evaluation tool will be designed to analyze the effectiveness of the training once students enter the workplace. This tool will help ensure continuous quality improvement.

Introduction to Process Technology(accelerated 11-week program):

Students demonstrate and apply the knowledge and skills needed for entry level positions in process technology and related industries. This includes a basic understanding of the work environment, safety requirements and quality assurance.

P. Other program information or comments that would assist the commission in making a decision using the Guidelines for Use of this Evaluation Tool found in Appendix A of the 2010 WCCC Statewide Strategic Plan.

This program addresses Wyoming and regional interests in the following ways:

Educated Citizenry – Through this accelerated program students may earn a Process Technology Certificate, thus increasing the number of post-secondary education certificates in Wyoming. In addition, the program supports high demand and high pay occupations, which improves the quality of life for our students and the clients who will be served by their skills.

Diversified Economy – This program helps build the technical skills required to support the changing skills required for energy related industries. Many of the fundamental skills developed through the electrical, mechanical and safety courses are relevant across industry.

Workforce Development – According to statewide industry representatives the demand for workers will increase by approximately 60 per year (initially delivered through two community colleges.) In addition, Wyoming is already second in the nation for the highest concentration of workers requiring these skill sets.

Accountability and Improvement – Course assessment data and course evaluations will be compiled by the program coordinator. This data will be evaluated and analyzed by the advisory committee to help ensure continuous improvement. In addition, the college will utilize our Institutional Research Office to develop and deliver a post-job placement survey to both employers and students to identify skill gaps needed that may not have been included in the program. This information will help ensure the program is kept up to date and is meeting industry needs.

Efficient and Effective Systems – Currently there are no other programs in Wyoming. By grounding this program in content developed through the Center for Process Technology and based on their national curriculum, this program is positioned for roll-out to other community colleges based in nationally identified industry criteria.

Labor Needs – As noted by industry experts throughout Wyoming, the demand for workers is estimated at a minimum of 50 - 54 per year for new hires. This does not include existing employees seeking professional development or recertification requirements.

Curriculum Development – The curriculum provided was based on the Center for Process Technology model and content and in partnership with industry professionals. Subject matter experts from process technology industries and Wyoming OSHA were consulted in the development of the curriculum and the program design itself.

Pathways – The Process Technology program supports multiple career clusters including

Energy and Technology. Its accelerated program design ensures opportunities to meet the needs of non-traditional students. In addition, the community colleges anticipate documenting a career pathway for the Process Technology program within three months of its approval. This career pathway template (roadmap) provides a tangible tool that will help reach into our secondary schools and create awareness of and prepare interested secondary students in this high demand, high growth occupation.

Faculty Support – At LCCC, because of the strong industry support provided, instruction will be provided by adjunct faculty who are already working professionals or retirees in the community. Faculty would be required to have a minimum of a bachelor's degree in this designated field and/or the appropriate certifications/job experiences.

Recruitment Strategies – Discussions have been held with key personnel from Holly-Frontier and other Process Technology companies in Wyoming. Because of the existing high demand and anticipated occupational growth, recruitment strategies would center on job attainment and professional growth. This has historically proven a strong recruiting tool for other programs such as Wind Energy Technology and Emergency Medical Services.

Resource Needs – A traditional classroom will be required for most of the educational experience. Classes for the southeast region will be held in the LCCC Career and Technical Building. In addition, computer lab usage will be required.