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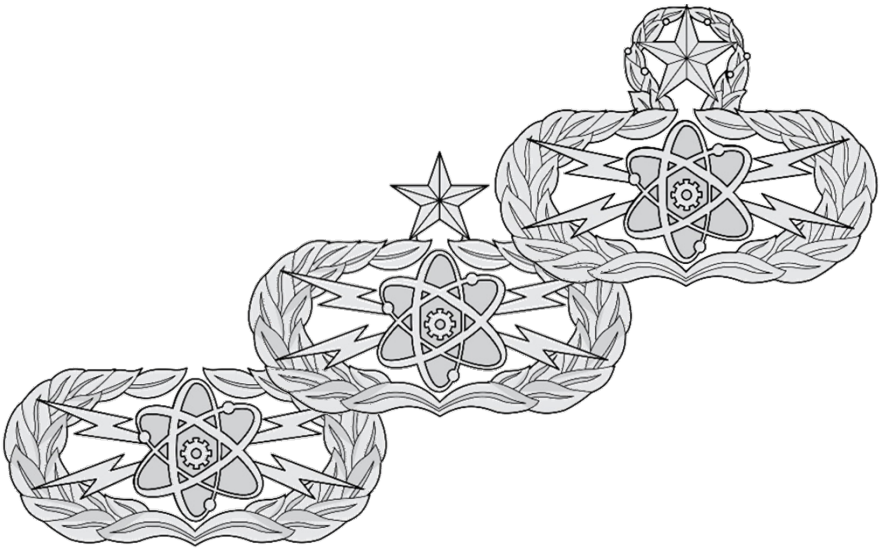

CAREER FIELD EDUCATION AND TRAINING PLAN

CAREER FIELD EDUCATION AND TRAINING PLAN (CFETP)
SCIENTIFIC APPLICATIONS SPECIALIST
RI 9S100

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REPORTING IDENTIFIER 9S100
CAREER FIELD EDUCATION AND TRAINING PLAN

Part I

Preface

1. This Career Field Education and Training Plan (CFETP) is a comprehensive document that identifies life-cycle education and training requirements as well as support resources. The CFETP will provide personnel a clear career path and instill rigor in all aspects of career field training. Due to the diversity of the 9S100 reporting identifier (RI), no core tasks are identified. Civilians and senior noncommissioned officers occupying associated duty positions will use Part II to support duty position qualification training.

2. The CFETP consists of two parts; both parts are used by supervisors to plan, manage, and control training.

2.1. Part I provides information necessary for overall management of the RI. **Section A** provides an explanation on the CFETP's purpose and intended utilization; **Section B** identifies career field progression information, duties and responsibilities, training strategies, and career field path; **Section C** identifies RI training administration, categorization, and requirements; **Section D** indicates resource constraints; and **Section E**, when used, identifies transition training guide requirements.

2.2. Part II includes the following: **Section A** identifies the Job Educational Training Standard (JETS) and includes duties, tasks, technical references to support training, Air Education and Training Command (AETC) conducted training, wartime courses, and correspondence course requirements; **Section B** contains the course objective list and training standards supervisors will use to determine if Airmen satisfied training requirements; **Section C** identifies available support materials; **Section D** provides a training course index supervisors can use to determine mandatory and optional resources available to support training; and **Section E** identifies MAJCOM-unique training requirements for supervisors to determine additional training required for the associated qualification needs.

3. CFETP guidance ensures Airmen are effectively trained at the appropriate timeframes throughout their careers. At the unit level, supervisors and trainers will use Part II to identify, plan, and conduct training commensurate with the overall goals of this plan.

ABBREVIATIONS/TERMS EXPLAINED

9S100 Deputy Career Field Manager. An individual on the Headquarters US Air Force (HAF) staff responsible for daily management of RI 9S100 training, force development, and management programs as delegated by the 1N/9S Air Force Career Field Manager (AFCFM). Responsibilities include coordination with command functional managers, technical training center personnel, and Air Force personnel resource managers. This includes identifying the task requirements and training for an Air Force specialty or occupational series.

9S100 Central. An open forum, on MS Teams, intended for strategic communication across the RI.

9S100 on SharePoint. A resource intended for strategic communication to the RI and other organizations. Contents include developmental and force management policies and career field initiatives. Link: https://usaf.dps.mil/teams/10713/default.aspx

Advanced Training (AT). Formal course which provides individuals, qualified in one or more positions of their Air Force specialty (AFS) or RI, with additional skills/knowledge to enhance their expertise; training is for selected career Airmen at the advanced level of the AFS/RI.

Advanced Career Development Program (A-CDP). A supplemental career ISR training course for SNCOs designed to expand their knowledge of ISR core competencies and distinctive capabilities in preparation for increased leadership and professional responsibilities. This course is taught in a seminar format. Topics include: ISR community roles, responsibilities, and organization; training, and equipping the ISR Force; and Total Force management. The course runs for ten training days in-residence at the 313 TRS, 158 Canberra St, Goodfellow AFB, TX. Completion of **I-CDP** is a prerequisite to attend. Supersedes Senior Enlisted ISR Master Skills Course (SEIMSC).

Air Education Training Command (AETC). Responsible for the recruiting, training, and education of Air Force personnel. AETC also provides pre-commissioning, professional military, and continuing education.

Air Force Enlisted Classification Directory (AFECD). The official directory for all enlisted classification descriptions, codes, and identifiers that establishes the occupational structure of the Air Force enlisted force. The occupational structure is flexible to permit enlisted personnel to specialize and develop their skills and abilities while allowing the Air Force to meet changing mission requirements. Individual enlisted personnel have a joint responsibility with commanders and supervisors at all levels to fully develop their abilities consistent with Air Force needs and within established developmental tracks. It is available in the "Classification" section of MyPers: https://mypers.af.mil/app/home

Air Force Institute of Technology (AFIT). Located at Wright-Patterson AFB, Ohio, AFIT is the Air Force's graduate school of engineering and management. AFIT is committed to providing defense-focused graduate and professional continuing education and research to sustain the technological supremacy of America's air and space forces. AFIT provides advanced education opportunities for both officer and enlisted personnel.

Air Force Job Qualification Standard (AFJQS). A comprehensive task list that describes a particular job type or duty position. Supervisors use the AFJQS to document task qualification. The tasks on AFJQSs are common to all persons serving in the described duty position**.**

Air Force Specialty (AFS). A group of duty positions that require common qualifications identified by a title and code. Each AFS is assigned an AFS code (AFSC) to identify a specific career field and qualification level for Air Force officers and enlisted personnel.

Air Force Specialty Code (AFSC)/Reporting Identifier (RI). A combination of alpha-numeric characters which are used to identify a specific career field and qualification level for Air Force officers and enlisted personnel.

Air University Associate-to-Baccalaureate Cooperative (AU ABC). Allows Airmen to turn a Community College of the Air Force associate's degree into a bachelor's degree from an accredited university. The ABC program has established a partnership with various civilian higher-education institutions to offer four-year degree opportunities via distance learning. The participating schools will accept all the credits earned by Airmen who have attained a CCAF degree and apply them to a bachelor's degree related to their Air Force specialty.

Air University/Air Force Career Development Academy (AFCDA). The result of a reorganization of Air Force Institute for Advanced Distributed Learning (AFIADL); provides access to the Extension Course Institute.

Career Development Program (CDP). The CDP was first developed in October 2018 and began with a single, online course. Since then, the CDP has evolved into a continuum of learning and consists of three iterations: Basic, Intermediate, and Advanced, and applies to all ISR Airmen. The CDP is designed to enhance skill development and unit effectiveness allowing for a more proficient ISR professional. **Basic CDP (B-CDP)** is required for all ISR members to complete OJT at their first duty station. **Intermediate CDP (I-CDP)** is required for all ISR TSgts prior to reaching one year time-in-grade. **Advanced CDP (A-CDP)** is required for all ISR MSgts prior to reaching three years' time-in-grade. CDP will contain information on basic principles, techniques, and procedures common to all 1A8/1NX/9S1 AFSs. Contact your UTM to enroll.

Chief Enlisted Manager (CEM) Code. A five-digit code ending in 00 to identify CMSgts and CMSgt-selects as top enlisted managers in both highly technical skills and in broad areas of managerial competence.

Career Field Education and Training Plan (CFETP). A CFETP is a comprehensive, multipurpose document encapsulating the entire spectrum of education and training for a career field. It outlines a logical growth plan that includes training resources and is designed to make career field training identifiable, to eliminate duplication, and to ensure this training is budget defensible.

Career Field Manager (CFM). Enlisted career field managers are typically Chief Master Sergeants, located at Headquarters Air Force, responsible for organizing one or more enlisted career fields. Their responsibilities include establishing career field entry requirements, developing/managing training plan requirements, evaluating training effectiveness, monitoring career field manning health, collaborating with other career field managers on issues affecting their Airmen, and providing input on programs and policies. Additionally, through Enlisted Development Teams, CFMs ensure the most qualified Noncommissioned and Senior Noncommissioned Officers are placed into key leadership or key development positions utilizing talent management practices.

Continuation Training. Additional training that exceeds requirements with emphasis on present or future duty assignments.

Course Objective List (COL). A publication, derived from initial/advanced skills course training standard, identifying the tasks and knowledge requirements, and respective standards provided to achieve a 3-5-7-skill level in a career field. Supervisors use the COL to assist in conducting graduate evaluations.

Computer Network Operations Development Program (CNODP). A technically demanding three-year internship in the areas of secure system design, vulnerability analysis, Computer Network Defense (CND), and Computer Network Exploitation (CNE), which is tailored to each applicant to best capitalize on individual expertise. The goal of the program is to develop a cadre of technical leaders who will improve Department of Defense (DoD) Computer Network Operations (CNO) capabilities. See the following link for more information: https://www.milsuite.mil/book/groups/af-cnodp

Data Acumen. The ability to make sound judgments and decisions with data.

Data Fluency (aka Data Literacy). The ability to read, work with, analyze and speak data regardless of your role, skill level, or the Business Intelligence tools you use.

Deputy Career Field Manager (D/CFM). An individual on HQ USAF staff responsible to the CFM for overseeing all aspects of a particular AFS/RI. Coordinates with MAJCOM functional and training managers, technical training center personnel, and various Subject Matter Experts (SMEs) on career path development and identification of CFETP training task items to meet national, tactical, and force training requirements. Other responsibilities include reviewing AFS/RI manpower utilization, managing AFS/RI classification guidance, and overall status of the health of their particular AFS/RI.

Developmental Special Duty (DSD). Nine positions with unique leadership and mentoring responsibilities. Nominations are processed twice annually from senior airman through senior master sergeant. DSD tours do not normally exceed four years.
https://www.afpc.af.mil/Assignment/Developmental-Special-Duty/

Digital Awareness. The awareness of the knowledge, skills and attitudes required for individuals to use digital tools effectively. Also being able to understand and utilize technology in an increasingly interconnected world.

Education and Training Course Announcement (ETCA). Located at https://cs2.eis.af.mil/sites/app10-ETCA/SitePages/Home.aspx, ETCA contains specific MAJCOM procedures, fund cite instructions, reporting instructions, and listings for those formal courses the MAJCOMs or FOAs conduct or manage. ETCA also contains courses the Air Force and reserve forces conduct or administer and serves as a reference for the Air Force DoD, other military services, government agencies, and security assistance programs.

Education with Industry (EWI). A highly selective and competitive non-degree educational assignment within an industry related to the student's career field. The program uses a hands-on educational experience to provide students with management skills and technical expertise as they study best practices with leaders of industry. The assignment is ten months in length and, in most

cases, involves a Permanent Change of Station (PCS) both before and after the EWI assignment.

Enlisted Development Team (EDT). A force development steering group to accomplish deliberate development through targeted feedback. The EDT is chaired by the AFCFM and is usually composed of SNCOs to facilitate succession planning for the RI's key leadership positions.

Field Evaluation Questionnaire (FEQ). An extensive survey based on the CFETP to determine how well formal training met the apprentice levels outlined in the CFETP. This survey is sent approximately six months after graduation to the base Education and Training Manager (if unclassified) or direct to the Unit Training Manager (if classified).

Field Technical Training (FTT). Special or regular on-site training conducted by a field training detachment (FTD) at a Formal Training Unit (FTU) or by a mobile training team (MTT).

Functional Area Manager (FAM). The individual accountable for the management and oversight of all personnel and equipment within a specific functional area to support the operational planning and execution. Responsibilities include but are not limited to; developing and reviewing policy; developing, managing, and maintaining Unit Type Codes (UTC); developing criteria for and monitoring readiness reporting; force posturing; and analysis. At each level of responsibility (Headquarters Air Force, MAJCOM, Air Component, FOA, DRU, and Unit), the FAM should be the most highly knowledgeable and experienced person within the functional area and have the widest range of visibility over the functional area readiness and capability issues.

Functional Manager (FM). An individual assigned collateral responsibility for training, classification, utilization, and career development of enlisted personnel. AFSC Functional Managers exist at MAJCOM and base level.

HAF Functional Authority (FA). An individual assigned the functional authority to provide policy, oversight, and guidance across the ISR enterprise. For the 1A8/1N/9S family, this is the Deputy Chief of Staff, Intelligence, Surveillance, Reconnaissance & Cyber Effects Operations (HAF A2/6). The Functional Authority has delegated the Authority of Functional Management to the Director, ISR/CEO Readiness and Talent Management.

HAF Functional Manager (FM). The Functional Manager is responsible for the management and oversight of the establishment of career development programs, functional management and utilization, specialty standards and requirements, training, and force management policies at HAF.

Initial Qualification Training (IQT). Training needed to qualify personnel for basic duties in an assigned position for a specific Mission Design Series (MDS), Weapon System, ISR function or activity without regard for a unit's specific mission.

Initial Skills Training (IST). A basic, formal, in-residence course leading to the award of a 3-skill level AFSC. For this RI, it prepares Airmen for basic duties based upon the requirements of their specific duty assignment through technique-specific modular training. Immediately followed up with OJT, IQT and MQT at duty location, as applicable.

Intelligence, Surveillance, and Reconnaissance (ISR). An activity that synchronizes and integrates the planning and operations of sensors, assets, and processing, exploitation, and dissemination systems in direct support of current and future operations. ISR consists of separate elements but

requires treatment as an integrated whole in order to be optimized.

Instructional System Development (ISD). A process for planning, developing, implementing, and managing instructional systems; it ensures personnel have essential knowledge, skills, and attitudes required for successful job performance.

Job Educational Training Standard (JETS). A comprehensive task list describing skills and knowledge that a 9S100 needs to perform the job. Supervisors use the JETS to document task qualifications. It further serves as a contract between the Air Education and Training Command and gaining organizations to show training requirements for RI 9S100.

Job Qualification Standard (JQS). A comprehensive task list that describes a particular job type or duty position. It is used by supervisors to document task qualifications. JQS tasks are common to all persons serving in the described duty position.

Major Command (MAJCOM). A MAJCOM represents a major Air Force subdivision having a specific portion of the Air Force mission. Each MAJCOM is directly subordinate to HQ USAF. MAJCOMs are interrelated and complementary, providing offensive, defensive, and support elements.

MAJCOM Functional Manager (MFM). An individual at the MAJCOM/Joint activity command-level who is responsible for identifying task and training requirements for an AFS or occupational series and is responsible for validating ISR requirements and matching available manpower resources to meet MAJCOM needs.

Master Task Listing (MTL). A comprehensive list (100%) of all tasks performed within a work center and consisting of the current CFETP or AFJQS and locally developed AF Forms 797 (as a minimum). Should include tasks required for deployment and/or UTC requirements.

Master Training Plan (MTP). Employs a strategy for ensuring the completion of all work center job requirements by using a MTL and provides milestones for task, Learning Program completion, and prioritizes deployment/UTC, home station training tasks, upgrade, and qualification tasks.

Mission Qualification Training (MQT). MQT follows IQT and is training needed to qualify ISR personnel to perform their specific unit mission in an assigned mission position. Completion of Specialty Training Standard task and knowledge training requirements may be accomplished concurrently with MQT.

Modular Training. Due to diversification, this RI uses a multi-course pathway located at Goodfellow AFB, TX. Students entering the RI receive core knowledge at the Fundamentals course, and then enter one or more “follow-on” modules to acquire skills/knowledge required for their assigned job. This design ensures up-to-date skills and knowledge training that meets mission needs and reduces excess training time. The Deputy CFM, MFM, and command functional managers should review individual records upon notification of assignment to ensure Airmen receive the appropriate training. An individual who is moving to a new mission area or has not worked in a previously qualified mission area (for four years or more) should be considered for the appropriate modular training.

MyVector. The Air Force’s platform for career development and mentoring. MyVector enables a

network of mentoring relationships for individuals to manage career development. The platform also allows users to track career milestones through career field-specific experience codes. The coding structure allows users to build career plans based on real opportunities and to share career plans with development teams and mentors. Site: https://myvector.us.af.mil/

National Intelligence University (NIU). NIU is an accredited academic institution established by the Department of Defense to prepare ISR professionals for Joint, Air Staff, and MAJCOM level positions. This is a center of excellence for educating military and civilian professionals and conducting and disseminating ISR-related research. National Intelligence University website: http://ni-u.edu/wp.

On-the-Job Training (OJT). Hands-on, over-the-shoulder training conducted to certify personnel in both upgrade (for skill level award) and job qualification (duty position certification) training.

Proficiency Training. Additional training (in-residence, exportable advanced training courses, or on-the-job training) provided to personnel to increase their skills and knowledge.

Qualification Training (QT). Actual hands-on task performance training designed to qualify an individual in a specific duty position. It is designed to provide the performance skills required to do the job.

Qualification Training Package (QTP). An instructional package designed for use at the unit to qualify, or aid qualification, in a duty position or program, or on a piece of equipment. It may be printed, computer-based, or other audio-visual media.

Reporting Identifier (RI). Established primarily to identify conditions or jobs where a specific specialty description is not practical and are awarded or designated to denote qualification or to report a condition the same way AFSCs are awarded.

Research, Development, Testing and Evaluation (RDT&E). Process for the development of a new or improved capability to the point where it is appropriate for operational use. Includes equipment, material, process, or computer application software, as well as the Development Test and Evaluation (DT&E) and Operational Test and Evaluation (OT&E) of such capabilities.

Resource Constraints. Resource deficiencies (such as money, facilities, time, manpower, and equipment) that precludes desired training from being delivered.

Special Experience Identifier (SEI). A code used to identify special experience and training not otherwise identified within the military personnel data system (MilPDS). SEIs complement the assignment process but are not substitutes for AFSCs, CEM codes, prefixes, suffixes, SDIs, RIs, personnel processing codes, and professional specialty course codes. They are established when identifying experience or training is critical to the job and person assignment match, and no other identification is appropriate or available.

Specialty Requirements Training Team (STRT)/Utilization and Training Workshop (U&TW). A forum co-chaired by the AFCFM and AF Training Pipeline Manager comprised of MAJCOM Functional Managers, Subject Matter Experts (SMEs), and AETC training personnel that determine education and training requirements and establishes the most effective mix of formal and on-the-job

training for each AFSC. The forum will create or revise training standards and set responsibilities for providing training. As a quality control tool, the STRT/U&TW will be used to ensure the validity and viability of the AFS training that determines career progression training requirements.

Specialty Training. A mix of formal training (technical school) and informal training (on-the-job) to qualify Airmen in modular qualification and the award of the RI.

Standard. An exact value, or a physical quality, established and defined by authority, custom, or common consent to serve as a reference, model, or rule in measuring quantities or qualities, in order to establish practices or procedures, or to evaluate results.

Talent Marketplace. Talent Marketplace is an innovative technological platform supporting the enlisted assignment system that aims to increase flexibility and transparency for members, supervisors, billet owners, and commanders. See https://www.milsuite.mil/book/groups/afpc-assignments-talent-marketplace for supporting information. Talent Marketplace is available through MyVector.

Task Module I. A group of tasks that are performed together and require common knowledge, skills, and abilities. TMs are identified by an identification code and statement.

Task-Oriented Training. Advanced training that emphasizes hands-on practice with the applicable equipment and performance of maintenance tasks.

Training Planning Team (TPT). Comprised of the same personnel as a U&TW, however TPTs are more intimately involved in training development and the range of issues are greater than those normally covered in the U&TW forum.

Upgrade Training (UGT). Mandatory training that leads to attainment of higher level of proficiency.

Section– A - General Information

1. Purpose of the CFETP. This CFETP provides information for the AFCFM, RI Manager, MFMs, commanders, training managers, supervisors, and trainers to plan, develop, manage, and conduct an effective career field training program. This plan outlines the training individuals in this RI should receive to develop and progress throughout their career. This plan identifies initial skills, qualification, advanced, and proficiency training. **Initial skills training** is the RI specific training an individual receives upon entry into the Air Force or upon retraining into this RI. Normally, this training is conducted by AETC at one of the technical training centers. **Qualification training** is actual hands-on task performance training designed to qualify an Airman in a specific duty position. It is designed to provide the performance skills/knowledge required to do the job. **Advanced training** is formal specialty training used for selected Airmen. **Proficiency training** is additional training, either in-residence or exportable advanced training courses, or on-the-job training, provided to personnel to increase their skills and knowledge beyond the minimum required. Some purposes of the CFETP; Serves as a management tool to plan, manage, conduct, and evaluate a career field training program. It is also used to help supervisors identify training at the appropriate point in an individual's career.

1.2. Identifies task and knowledge training requirements in the specialty and recommends education/training throughout each phase of an individual's career.

1.3. Lists training courses available for the specialty, identifies sources of training, and the training delivery method.

1.4. Identifies major resource constraints impacting full implementation of the desired career path training process.

2. Use of the CFETP. The plan will be used by MFMs and supervisors at all levels to ensure comprehensive and cohesive training programs are available for everyone in the RI.

2.1. AETC training personnel will develop/revise formal resident, non-resident, field, and exportable training based on requirements established by the users and documented in Part II of the CFETP. They will also work with the AFCFM and RI Manager to develop acquisition strategies for obtaining resources needed to provide the identified training.

2.2. MFMs will ensure their training programs complement the CFETP mandatory initial and proficiency requirements. Identified requirements can be satisfied by OJT, resident training, contract training, or exportable courses. MAJCOM-developed training to support this RI must be identified for inclusion into this plan.

2.3. Each individual will complete the mandatory training requirements specified in this plan. The lists of courses in Part II will be used as a reference to support training.

3. Coordination and Approval of the CFETP. The AFCFM is the approval authority. The AFCFM, MAJCOM representatives, and AETC training personnel will identify and coordinate career field training requirements. The AETC training manager will initiate an annual review of this document by AETC and MFMs to ensure currency and accuracy.

Section B – Information and Career Progression

4. Reporting Identifier Description

4.1. Reporting Identifier Summary. Solves intelligence, surveillance, and reconnaissance (ISR) problems through applied science. Utilizes foundational physics, chemistry, math, data analytic, engineering, and technical knowledge & skills to resolve problem sets and seek innovative solutions. Performs scientific and technical research, development, specialized data analysis and maintains unique scientific equipment supporting ISR operations, logistics, research, and other functions. This specialty performs data collection, analysis, observation, acquisition, maintenance, laboratory functions, and fielding of prototype and operational sensors. These sensors include but are not limited to the following: specialized geophysical, nuclear radiation, radiochemical, electro-optical, radio frequency, infrared, and radar systems on fixed, deployable, airborne, orbital, and experimental collection platforms. Related DoD Occupational Subgroup: 149600**.** The full description of the RI is available in the AFECD.

4.2. Utilization of the Reporting Identifier. The RI is used to support many different roles across National, Joint, and Air Force mission areas. These specialists bring unique scientific education, aptitude, and critical perspectives to solving complex technological and analytical problems. 9S100s are typically employed in positions where in-depth knowledge and application of physical science is required to perform data analysis, operations, RDT&E, or maintenance procedures necessary to support systems currently employed or advance current technological systems and techniques.

5. Skill/Career Progression. The 9S100 career field is designated as a RI due to the diversity and scope of the missions it supports and the unique requirements for managing 9S100 personnel. Therefore, this CFETP does not utilize "skill level" progression. Instead, this CFETP uses two categories of training proficiencies: **Initial Skills Training (IST)** and **qualification training.**

5.1. Scientific Applications Specialist Duties and Responsibilities. The RI is not limited to performing only the following duties as evolving mission requirements and classifications prohibit the listing of all possible roles and responsibilities. This is a guide as to what duties and responsibilities 9S100 personnel should be typically performing at each grade.

Table 5.1, RI 9S100 Skill/Career Progression

Grade	Badge	AFS Jobs	AFS Training	USAF Jobs/Duties	USAF Training/ Pro-Dev	Knowledge Skills Abilities
AB - 	Basic Badge:  Complete technical training & be awarded the 9S100 RI	Analyst Technician Operator	Mission qualification, OJT, or equivalent; B-CDP	N/A	First-Term Amn Center	Assist, support, analyze, install, test, identify, interpret, report, Data Workforce Prof. Lvl 1 (DWP-1)
		Analyst Senior Analyst Technician Operator	Advanced OJT, qual/cert, continuation trng, or equivalent	Trainer Supervisor	ALS AF Training Course ("train the trainer")	Train, supervise, evaluate, author, advise, analyze, maintain, repair, replace, DWP-2/3
	Senior Badge:  Complete initial qual, 12 months time-in-position (retrainees: 9 months in RI)	Supervisor Manager Evaluator NCOIC Lead Tech School Instructor	9S1 "just in time" (PCS) training and/or 9S1 adv course, NIU, EWI, CNODP	DSD (MTL/MTI, Honor Guard, Dorm Ldr, Recruiter, PME Instructor); UDM/UTM, DAO	Base NCOPD CCAF/equiv, AFCOOL, SEJPME I	Lead crews/msns, build training plan, coordinate shift work, train Airmen, research, develop, schedule, innovate, build, DWP-3
		Team/Flight NCOIC Shift Supervisor Pgm Manager Tech School Instructor	9S1 courses (above), I-CDP (1yr TIG) NIU, EWI, CNODP, AFIT	DSD (USAFA NCO, A&FRC NCO, Recruiter, PME Instructor); UDM/UTM, DAO Ad Duty 1st Sgt	NCOA, CCAF/equiv. AFCOOL, SEJPME I	Lead teams/ops, mentor, guide, develop courses/systems, establish, test, evaluate, procure, plan/program resources, DWP-3/4

Grade	Badge	AFS Jobs	AFS Training	USAF Jobs/Duties	USAF Training/ Pro-Dev	Knowledge Skills Abilities
	Master badge:  award after 5 years in RI from award of senior badge (retrainees: 5 yrs in RI) 1N000	Flt/Section/Det Chief, Sq/Ops Supt, Manager	A-CDP (3yr TIG) NIU Internship	DSD (above & CAA & 1st Sgt)	Base SNCOPD SEJPME II Joint PME Sqdn Ldr Crse SNCOA Sister-Svc PME AFCOOL	Lead orgs/ops, mentor/develop Amn/NCOs/CGOs, manage resources (e.g., ACR/OCR/MCR), drive talent mgmt., advise sr leaders
		Det Chief, SEA/SEL, Sq/Ops Supt, Manager	A-CDP NIU Internship	SDI (e.g., 9L1, MEPS Sup't, IG, Legislative Fellow)	Sister-Svc PME AFCOOL	Lead AF/joint orgs/ops, mentor/develop enl & jr officers, drive talent mgmt. and tradecraft growth, manage resources & direct ISR functions
		Superintendent, SEA/SEL MFM/CCMD J2 CEM CFM	NIU	9G/9E CFM	CLC CSLC Sr Leadership Workshop	Strategic leader/advisor to exec steering grps, Align unit to HHQ/OPLANs/ CONPLANs, Multi-domain experience, Manage ISR AFSs

5.2. Scientific Applications Specialist Occupational Badge.

5.2.1. Heraldry. Since the dawn of the nuclear age the atomic symbol has represented the application of science and technology to both the military and the public. To Scientific Applications Specialists, the atomic symbol portrays the fundamental interest in basic elemental science and nuclear/electronic technology that has formed the foundation of the RI since its inception. The gear wheel is a historic symbol of the engineering profession. Engineering is a primary element of the Scientific Applications Specialist RI as it unites interest in science with the development and sustainment of unique Air Force scientific mission equipment. Finally, the lightning flashes symbolize the power obtained when science, technology, and engineering principles are brought together and applied by Scientific Applications Specialists through operations and analysis that serve to execute the Air Force mission.

5.2.2. Eligibility. All Airmen, to include retired and separated members, awarded RI 9S100 (or associated identifiers 99125, 99104, 99105, 99106, 9S000, and 9S200); Current, or former, ISR (1N/9S) AFCFMs; MAJCOM A2/MFMs, who have, or had, functional authority over 9S100 authorizations, are eligible to wear the Scientific Applications Specialist occupational badge IAW paragraph 5.2.3.

5.2.3. Awarding. Wear the basic badge after completing technical training and being awarded the 9S100 RI. Wear the senior badge after having met all the basic badge requirements, served in the 9S100 RI for a minimum of 12 months (9 months if a retrainee), and attained the rank of Staff Sergeant or above. Wear the master badge after attaining the rank of Master Sergeant and having served five years in the 9S100 RI from award of the senior badge. For retrainees, credit towards new badge starts upon entry into the 9S100 RI. EXCEPTION: The ISR (1N/9S) CFM and MAJCOM/A2 MFMs may wear the Master Scientific Applications Specialist badge. Chief Master Sergeants cross-flowed into a 9S100 billet may wear the basic badge upon entering the 9S100 billet and the master badge after one year in a 9S100 position.

6. Training Decisions. This CFETP uses a building block approach (simple to complex) to encompass the entire spectrum of training requirements. The spectrum includes a strategy for when, where, and how to meet the training requirements. The strategy must be apparent and affordable, to reduce duplication of training and eliminate a disjointed approach to training.

7. Community College of the Air Force (CCAF). Enrollment in the CCAF occurs upon completion of Basic Military Training. The CCAF provides the opportunity to obtain an Associate's of Applied Sciences Degree and the additional opportunities:

7.1. Occupational Instructor Certification. Upon completion of instructor qualification training, consisting of the instructor methods course and supervised practice teaching, Community College of the Air Force instructors who possess an associate degree or higher may be nominated by their school commander and commandant for certification as an occupational instructor.

7.2. Trade Skill Certification. When a Community College of the Air Force student separates or retires, a trade skill certification is awarded for the primary occupational specialty. The College uses a competency-based assessment process for trade skill certification at one of four proficiency levels: Apprentice, Journeyman, Craftsman (Supervisor), or Master Craftsman (Manager). All are transcribed on the Community College of the Air Force transcript.

7.3 Degree Requirements. All Airmen are automatically entered into the Community College of the Air Force program. Prior to completing an associate degree, the 5 level must be awarded and the following requirements must be met:

	Semester Hours
Technical	24
Leadership, Management, and Military Studies	6
General Education	15
Program Elective	15
Total	**60**

7.3.1. Technical Education (24 Semester Hours). A minimum of 12 semester hours of Technical Core subjects and courses must be applied, and the remaining semester hours applied from Technical Core or Technical Elective subjects and courses.

7.3.2. Leadership, Management, and Military Studies (6 Semester Hours). Professional military education and/or civilian management courses.

7.3.3. General Education (15 Semester Hours). Applicable courses must meet the criteria for application of courses to the General Education Requirement and be in agreement with the definitions of applicable General Education subjects/courses as provided in the CCAF General Catalog.

7.3.4. Program Elective (15 Semester Hours). Satisfied with applicable Technical Education; Leadership, Management, and Military Studies; or General Education subjects and courses, including natural science courses meeting General Education Requirements application criteria. Six semester hours of Community College of the Air Force degree applicable technical credit otherwise not applicable to this program may be applied. See the Community College of the Air Force General Catalog for details regarding the Associates of Applied Sciences degree for this specialty.

7.4. Air Force Credentialing Opportunities On-Line (AF COOL). The AF COOL program provides a research tool designed to increase an Airman's awareness of national professional credentialing and CCAF education opportunities available for all AF occupational specialties. AF COOL also provides information on specific occupational specialties, civilian occupational equivalencies, CCAF degree programs, AFSC-related national professional credentials, credentialing agencies, and professional organizations.

7.5. Air University Associate to Baccalaureate Cooperative Program (AU-ABC Program). Directs Airmen with Associate in Applied Science Degrees from the CCAF to a collection of accredited military friendly colleges and universities to consider when completing a four-year degree. The program maximizes the application of military career education and training and provides a multitude of online academic and support services for the enlisted member.

7.6. Additional Off-Duty Education. Off-Duty education is a personal choice that is encouraged for all. Individuals desiring to become an Air Education and Training Command Instructor should be actively pursuing an associate's degree. A degreed faculty is necessary to maintain accreditation through the Southern Association of Colleges and Schools.

8. Career Field Path

8.1. 9S100 Enlisted Career Path.

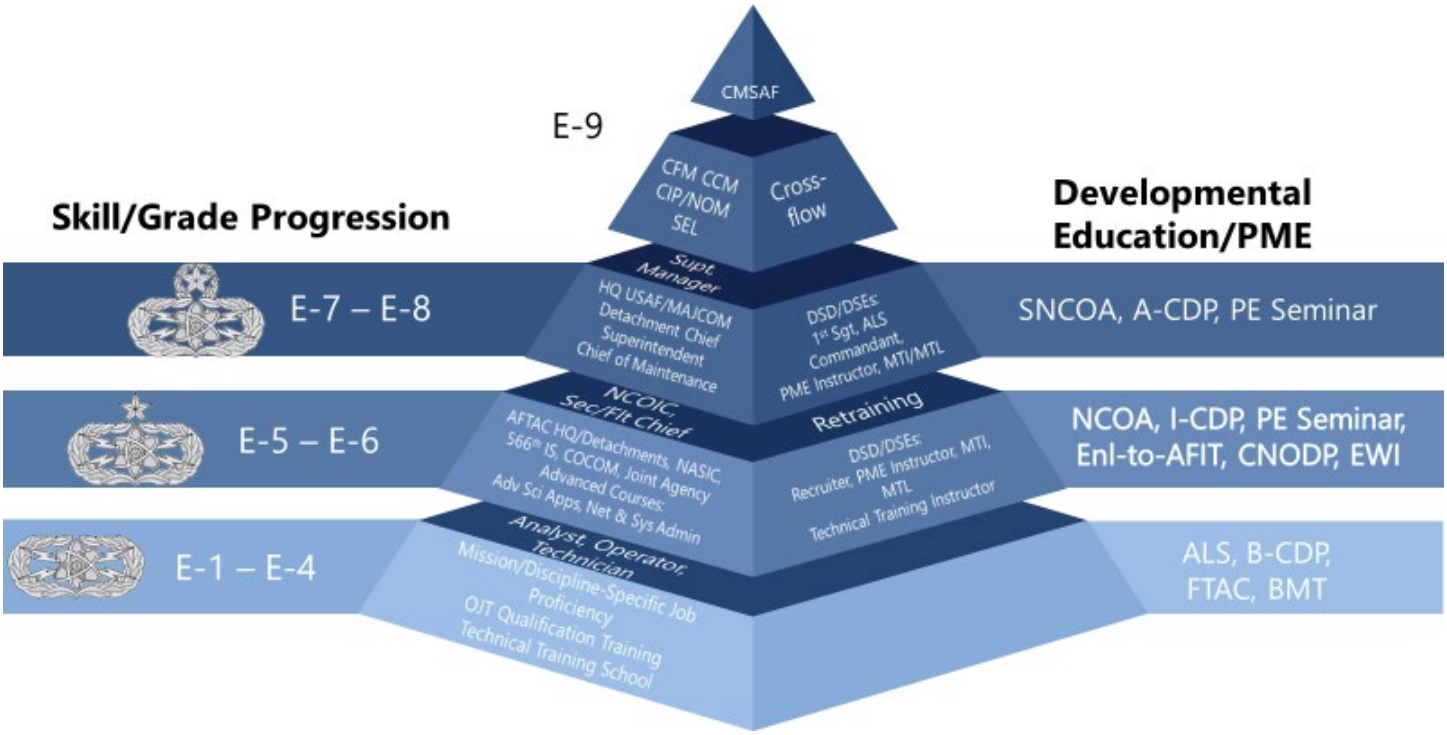

Figure 8.1 9S100 Enlisted Career Path

8.2. Force Development. Throughout their careers, 9S100s are subject to a wide variety of roles and positions to support dynamic missions utilizing technologically advanced systems. These systems require skills and knowledge beyond a conventional craft or trade. In many cases, 9S100s are expected to apply theory in uncertain conditions while analyzing and evaluating new information. Expanding diversity of these missions, and the rapidly advancing technologies needed to support them, impact our most valuable resource: our Airmen. Over the course of a career, a 9S100 may stay completely within one discipline or work in multiple highly technical areas with a variety of related systems. There are opportunities for advancement whether a 9S100 chooses to remain in one area of expertise or learns multiple systems. It is essential we effectively train our Airmen to succeed in this challenging environment with modular (or "just-in-time") training, advanced certificate and degree programs, and robust OJT. Adequate training and timely career progression are critical factors for the Air Force to accomplish its missions. It is also essential everyone involved in training do their part to plan, manage, and conduct an effective training program. Every 9S100 should continue technical development through a variety of means, such as technical manuals, advanced courses, off-duty education, professional and technical certifications, seminars, etc. Technical development, just like professional growth, never ends.

8.3. Training Requirements by Rank

8.3.1. Airman Basic (AB) and Airman (Amn)
Airmen learn basic technical skills while adapting to the requirements of the military profession. Formal technical training for entry level Airmen consists of the task and knowledge training provided by AETC and consists of several courses. The first course, Scientific Applications Fundamentals, is currently taught at Goodfellow AFB, TX. This course provides the student with a basic understanding of work center safety, electronics, radio frequency communications, computer programming, data manipulation/scripting, applied mathematics, statistics, and physics. More importantly, the Fundamentals course provides a foundation for critical and analytical thinking, vital to all 9S100 roles. It is a prerequisite for entry into the "follow-on" initial skills courses also taught at Goodfellow AFB TX. These courses focus on location-specific technical skills and tasks Airmen will encounter at their next assignment. Selection for any specific initial skills course is contingent upon the requirements of the assignment. Task and knowledge training requirements are identified in the JETS. Individuals must complete the fundamentals course and one of the initial skills courses in order to be awarded RI 9S100.

8.3.2. Airman First Class (A1C)
A1Cs fully comply with Air Force standards and are expected to devote their efforts to the mastery of technical skills and knowledge required in the RI while becoming effective team members. The general requirements to complete training are: (1) possession of RI 9S100; (2) complete qualification training requirements for current duty position, such as OJT; (3) satisfactorily perform in current duty position for a minimum of 12 months (a minimum of 9 months if a retrainee); (4) recommendation of immediate supervisor; and (5) completion of B-CDP. Individuals moving to new duty assignments or positions may require advanced training to acquire assignment-specific skills. The training requirements for these courses are identified in the JETS.

8.3.3. Senior Airman (SrA)
SrA develop supervisory and leadership skills through progressively increasing responsibilities on the job, during professional military education, individual study, and mentoring by their supervisors. The requirements for completion of training are: (1) possession of RI 9S100; (2) complete qualification training requirements for current duty position, such as OJT; (3) satisfactorily perform in current duty position for a minimum of 12 months (a minimum of 9 months if a retrainee); (4) recommendation of immediate supervisor; and (5) completion of B-CDP. Individuals moving to new duty assignments or positions may require advanced training to acquire the assignment-specific information and skills required for the new position. The task and knowledge training requirements for these courses are identified in the JETS.

8.3.4. Staff Sergeant (SSgt)
SSgts are primarily highly skilled technicians with supervisory and training responsibilities. They also continuously strive to further their technical development and team leadership skills. SSgts must complete all duty position requirements and B-CDP. Individuals moving to a new assignment or position may also require advanced training through additional 9S100 courses, certificate programs, or advanced coursework. Retraining members must complete Scientific Applications Fundamentals course and one follow-on initial skills course to fulfill initial RI technical training requirements. To become position qualified, retrainees will complete local qualification training and must occupy the position for 9 months. SSgts should also strive to complete the academic requirements for a CCAF associate's degree in Scientific Analysis Technology (or civilian equivalent associate's degree). SSgts are also encouraged to explore developmental special duty opportunities such as USAF Honor

Guard NCO, Military Training Instructor, Recruiter, etc.

8.3.5. Technical Sergeant (TSgt)
TSgts are often technical experts and provide sound supervision and comprehensive training. They are responsible for the development of all assigned enlisted personnel within their span of control. TSgts must also complete all duty position requirements. Individuals moving to a new assignment or position may also require advanced training through additional 9S100 courses, certificate programs, or advanced coursework. Completion of I-CDP is required within one year time-in-grade. Retraining members must complete Scientific Applications Fundamentals course and one of the follow-on initial skills courses to fulfill initial RI technical training requirements. To become position qualified, retrainees will complete local qualification training and must occupy the position for 9 months. Completion of the I-CDP course is required for TSgts and retrainees by three-years' time-in-grade. 9S100 TSgts are also expected to complete the academic requirements for a CCAF associate's degree in Scientific Analysis Technology (or civilian equivalent associate's degree) and are highly encouraged to continue their education. TSgts should explore developmental special duty opportunities to better prepare them for SNCO responsibilities.

8.3.6. Master Sergeant (MSgt)
MSgts are transitioning from technical experts and first line supervisors to operational leaders who merge their subordinates' talents, skills, and resources with other teams and functions to accomplish the mission. MSgts must complete all duty position requirements, B-CDP, and I-CDP, as applicable. Individuals moving to a new duty assignment or position may also require advanced training through additional 9S100 training modules, certificate programs, or advanced coursework to acquire the assignment-specific training required for the new position. 9S100 MSgts should have already completed the CCAF associate's degree (or civilian equivalent) and are strongly encouraged to pursue off-duty educational opportunities such as an undergraduate or graduate degree program. 9S100 MSgts desiring promotion to SMSgt typically need to have served as a directorate/squadron superintendent, detachment chief/superintendent, functional manager (HQ USAF, Joint, National agency, or MAJCOM), or in another leadership position indicative of increased responsibility, to be competitive for promotion.

8.3.7. Senior Master Sergeant (SMSgt)
SMSgts are key, experienced, operational leaders skilled at merging their subordinates' talents, skills, and resources with other teams and functions to accomplish the mission. SMSgts continue to develop their leadership and management skills in preparation for expanded responsibilities and higher leadership positions. By this point in their career, they should be serving as a detachment chief/superintendent, directorate/squadron superintendent, or functional manager (HQ USAF, Joint, National agency, or MAJCOM). SMSgts should also have some experience in first sergeant-related matters and command-level staff functions. This breadth of experience ensures SMSgts can serve as key advisors for senior leaders, commanders, and the 9S100 functional community. There are no career-field-specific knowledge/training requirements for SMSgts. Individuals moving to a new duty assignment or position generally will not require advanced training to assume the new position, although certain duty positions may require qualification training. Additional training in the areas of budget, manpower, resources, and personnel management should be pursued through continuing education to include the Advanced-Career Development Program (A-CDP) Course. 9S100 SMSgts will have likely completed an undergraduate degree program (and considered a graduate program) to enhance technical, managerial, or leadership capabilities.

8.3.8. Chief Master Sergeant (CMSgt)

CMSgts are expected to excel in all duty positions. CMSgts must have a broad base of experience with and knowledge of most, if not all, 9S100 missions and duties. By this point in their career, they should have served as a detachment superintendent/chief or MAJCOM or higher-level position as well as be experienced in first sergeant-related matters and staff functions commensurate with senior leadership roles. There are no career-field-specific knowledge or training requirements for CMSgt. Chiefs moving to a new duty assignment or position generally will not require advanced training to assume the new position, although certain duty positions may require qualification training. Additional training in the areas of budget, manpower, resources, and personnel management should be pursued through continuing education. 9S100 Chiefs will have likely completed an undergraduate degree program (and considered a graduate program) to enhance technical, managerial, or leadership capabilities.

Section C – Reporting Identifier Training Requirements

9. Purpose. This CFETP encompasses the entire spectrum of training requirements for RI 9S100. The spectrum includes a strategy for when, where, and how to meet the training requirements. This strategy is designed to be apparent and affordable to reduce duplication, eliminate a disjointed approach, and ensure universal availability of training for all.

9.1. Modular training. The 9S100 RI uses modular training to effectively meet mission requirements and train Airmen "just-in-time." Non-prior service (NPS) students and retraining students attend initial skills training. Initial skills training is task-oriented and prepares Airmen for specific duty assignment requirements using training modules developed for specific systems operated and maintained by 9S100 personnel. Each of the initial skills training courses will deliver training and assignment-specific requirements tailored to the first duty assignment. Personnel who have been awarded the RI who are selected for an assignment will attend advanced training modules that will provide just-in-time skills and knowledge to prepare them for the new position. In most cases, this training will consist of one or more courses taught at Goodfellow AFB. Modular training does not replace or alleviate the need for OJT. Every unit and supervisor must carefully consider what additional core knowledge and critical tasks are required and build a training program to meet unit mission requirements. MAJCOM formal training personnel will schedule advanced training for 9S100 personnel reassigned to new duties on an as-required basis.

9.2. Classification and Tracking of Training. As an RI, 9S100 personnel face unique difficulties in tracking and administering training. 9S100s do not have skill-levels and because of this the standard Training Status Codes (TSC) utilized by AFSCs do not match the RI upgrade training architecture. Because of this, 9S100 personnel will be entered into TSC "R" while completing qualification training. TSC "R" indicates that an Airman has completed upgrade training and will not restrict them from promotion testing. Units will use a locally developed process to track 9S100 OJT. In addition, if not already accomplished, a skill level waiver will be completed as soon as the individual arrives on-station.

10. Training Categories. The RI 9S100 CFETP uses two categories of training: **Initial training** and **Qualification training** rather than skill levels.

10.1. Initial Skills Training Requirements

10.1.1. Knowledge. Must possess fundamental knowledge of the following:

10.1.1.1. Electronic Principles, including radio frequency theory and applied physics.

10.1.1.2. Mathematics, including statistics, probability, and linear algebra.

10.1.1.3. Sciences, including quantum mechanics theory and classical/nuclear physics.

10.1.1.4. Phenomenology, including geophysical, electro-optic, nuclear radiation, and radio frequency.

10.1.1.5. Data Analytics, including Python programming, data structures and operations, functions, and data visualization.

10.1.1.6. Logistics and Maintenance, including logistics and supply.

10.1.1.7. Missions and organizations, including community structure, roles and responsibilities, general principles, national and theater assets, and operational applications.

10.1.2. Education. Completion of high school or high school equivalency is mandatory for entry into this RI. Courses in physics, mathematics, and computer science are desirable.

10.1.3. Training. Completion of the Scientific Applications Fundamentals qualification course and at least one RI-awarding follow-on modular course (Geophysical Systems Maintenance, Applied Data Analysis, Special Equipment Maintenance, Geophysical Data Analysis) are mandatory for award of the RI.

10.1.4. Experience. None required.

10.1.5. Accession (Entry) Requirements. Required ASVAB minimum aptitude scores: mechanical – 88, electronic – 85. Normal color vision, open to United States Nationals only, and individual must be eligible for a Top Secret security clearance in accordance with AFI 31-501. A minimum score of 57 on the Electronic Data Processing Test (EDPT) and a minimum Strength Aptitude Code – G (40 lbs.) is required to enter the initial skills course. Requirements are listed in the Air Force Enlisted Classification Directory (AFECD). Search "AFECD" on myPers for the latest.

10.1.6. Training Sources and Resources. The initial skills courses will provide the required knowledge and qualifications. Initial skills training is accomplished through a fundamentals "prerequisite" course and at least one follow-on modular course at Goodfellow AFB TX. The current JETS identifies all tasks trained through these formal courses; initial skills requirements are identified in the "Initial" column.

10.1.7. Implementation. Upon completion of Basic Military Training, Airmen are assigned (PCS) to Goodfellow AFB to attend the fundamentals "prerequisite" course and at least one follow-on modular course. Initial skills training RI 9S100 personnel are satisfied upon successful completion of both courses. Training status code "K" (Attending Technical School) is to be used for NPS and retrainees while in the required formal courses (Technical School).

10.2. Qualification Training Requirements

10.2.1. Qualification Training. Qualification training begins at the first duty station when the individual enters OJT. The requirements for completion of "qualification training" are: (1) completion of initial skills training and subsequent possession of RI 9S100; (2) complete qualification training requirements for current duty position; (3) satisfactorily perform in current duty position for a minimum of 12 months (a minimum of 9 months if a retrainee); (4) recommendation of the immediate supervisor, and (5) completion of the Basic-CDP (B-CDP); and (6) completion of the I-CDP, as applicable.

10.2.1.1. Implementation. Upon arrival at the member's first duty assignment, unit training managers will verify NPS and retrainees are entered into TSC "R" and a skill level waiver has been accomplished. Conventional Air Force OJT progress evaluation time frame requirements are waived and replaced with the requirements in 10.2.1. In addition, units will use a locally developed process to track OJT requirements.

10.2.1.2. Completing OJT. Units will use a Master Training Plan and associated Master Task Listing to establish the position qualification criteria to complete training. Once the individual has met the qualification training requirements of 10.2.1 above, the supervisor recommends the unit training manager to remove them from the OJT process.

10.3. Modular Training Requirements

10.3.1. Modular Training. 9S100s utilize modular training matched to their projected assignment. Therefore, when a 9S100 is assigned to a mission area they are not qualified for, they will require an additional advanced course.

10.3.1.1. Implementation. Training status code "K" (Attending Technical School) is to be used while attending the advanced module at the technical school at Goodfellow AFB. OJT begins upon arrival at the new duty station.

10.3.1.2. Completing OJT. Once the individual has met the gaining unit's qualification training requirements, the supervisor recommends the unit training manager to remove them from the OJT process.

11. Training Status Codes. The training status codes are derived from AETCI 36-2651.

12. On-the-Job Training (OJT)

12.1. General Responsibilities. The duties and responsibilities of the AFCFM, Deputy 9S100 CFM, unit commanders, unit training managers, supervisors, trainers, and trainees are specified in AETCI 36-2651, AFI 37-138, and this plan.

12.2 Documentation. Training records will be accomplished using the current AFCFM authorized standard for 9S100 OJT documentation. Units may use online/virtual resources, hardcopy records, or a combination of both, as required, to accomplish training. If the standard for OJT documentation is not available, a waiver can be granted by the unit commander.

13. Special Experience Identifiers

13.1. Special Experience Identifier (SEI). SEIs identify special experience and training not otherwise identified within the personnel data system. SEIs complement the assignment process but are not substitutes for AFSCs, prefixes, or suffixes. They are established when identifying experience or training is critical to the job and assignment match, and no other identification is appropriate or available. SEIs permit identification of a resource already experienced to meet unique circumstances, contingency requirements, or management needs. They provide a means to track individuals and identify positions requiring or providing unique experience or training that otherwise would be lost. Refer to the AFECD for a more detailed explanation and the complete list of SEIs. The AFECD is available on myPers.

13.2. SEI award and removal. Units should ensure SEIs are awarded as appropriate for proper personnel tracking. Refer to the AFECD for SEI requirements.

Section D - Resource Constraints

14. Purpose. As prescribed in AETCI 36-2651, *Basic Military and Technical Training*, this section identifies known resource constraints which preclude optimal/desired training from being developed or conducted, including information such as cost and manpower. Narrative explanations of each resource constraint and an impact statement describing what effect each constraint has on training are included. Also included in this section are actions required, office of primary responsibility, and target completion dates. Resource constraints will be, as a minimum, reviewed and updated annually.

15. Initial Training:

15.1. Constraints. N/A

15.1.1. Impact. N/A

15.1.2. Resources Required. N/A

15.1.3. Action Required. N/A

15.2. OPR/Target Completion Date. N/A

Section E - Transitional Training Guide

This area is reserved for future use.

Part II

Section A - Job Education Training Standard (JETS)

1. Implementation. This JETS will be used to identify technical training provided by AETC for the Scientific Applications Fundamentals course with classes beginning in CY 2021.

2. Purpose. As prescribed in AETCI 36-2651, *Basic Military and Technical Training,* this JETS:

2.1. Lists in Column 1 (*Tasks, Knowledge, and Technical Reference*) the most common tasks, knowledge, and technical references (TR) necessary for Airmen to perform duties in the RI.

2.2. As a minimum, trainees must complete all critical tasks for upgrade to qualified status. Critical tasks will be determined by the supervisor relative to the individual's assigned duty position.

2.3. Wartime tasks. In response to a wartime scenario, RI 9S100 does not require accelerated training.

2.4. This JETS provides certification for OJT. Columns 3A, B, C, D, and E are used to record completion of tasks and knowledge training requirements. Use MyTraining or equivalent training management system to document technician qualifications if available. Task certification must show a certification or completed date.

2.5. This JETS shows formal training and correspondence course requirements. Columns 4A shows the proficiency to be demonstrated on the job by the graduate, post training on the task/knowledge. Column 4B is for unit, OJT, and/or MQT use.

2.6. Qualitative requirements. Attachment 1 contains the *Proficiency Code Key* used to indicate the level of training and knowledge provided by resident training and career development courses.

2.7. The JETS becomes a JQS for on-the-job training when utilized with an Individual Training Record. When used as a JQS, the following requirements apply:

2.7.1. Documentation. Document and certify completion of training in accordance with Air Force and local unit policy. OJT documentation will use the current AFCFM authorized standard to document training (refer to CFETP Part I, paragraph 12).

2.7.1.1. Converting from old CFETP to new CFETP. Use the new CFETP to identify and certify all past and current qualifications. Document according to current Air Force instructions.

2.7.1.2. Decertification and Recertification. When an Airman is found to be unqualified on a task, the supervisor shall remove previous certification and enter the member into qualification training. Appropriate remarks are entered in the Individual Training Record as to the reason for decertification. The individual is recertified using the normal certification process.

2.7.2. Training Standard. Tasks are trained and certified to the "go" level. This level indicates the individual can perform the task without assistance and meets the local requirements for accuracy, timeliness, and correct use of procedures. This equates to a "3c" in the proficiency code key.

AFQTPs, when available, shall be used to identify Air Force standardized procedures. Local requirements for accuracy, timeliness, and use of procedures shall be applied accordingly.

2.7.3. Task Numbering. All tasks have been numbered relative to the attachment number. This allows greater flexibility, enabling future modifications to be made without affecting the entire document.

2.8. This JETS contains the following attachments:

2.8.1. Attachment 1. Qualitative Requirements. Used to indicate the level of training and knowledge provided by resident training.

2.8.2. Attachment 2. RI 9S100 Scientific Applications Fundamentals JETS. Covers Air Force indoctrination, electronics principles, programming and data operations, community mission and organization, and technical knowledge and skill requirements applicable to all 9S100s.

2.8.3. Attachment 3. RI 9S100 Applied Data Analysis JETS.

2.8.4. Attachment 4. RI 9S100 Geophysical Data Analysis JETS.

2.8.5. Attachment 5. RI 9S100 General Maintenance Principles JETS.

2.8.6. Attachment 6. RI 9S100 Geophysical Systems Maintenance JETS.

2.8.9. Attachment 9. RI 9S100 Special Equipment Maintenance JETS.

3. Recommendations. Report JETS inadequacies and/or unsatisfactory performance of individual course graduates to 312TRS/DOE, 170 Griffin Street, Suite 21, Goodfellow AFB TX 76908-4213, referencing specific JETS paragraphs. A 24-hour Customer Service Information Line (CSIL) has been installed for the supervisor's convenience to identify demonstrated over- or under-training on performance/knowledge items listed in the training standard. For a quick response to any training concerns, call the CSIL, DSN 477-3350, anytime day or night.

Section B - Course Objective List

4. Measurement. Each objective is indicated as follows: **W** indicates task or subject knowledge, which is measured using a written test, **PC** indicates required task performance which is measured with a performance progress check, and **PC/W** indicates separate measurement of both knowledge and performance elements using a written test and a performance progress check.

5. Standard. The standard is 70% on written examinations. Standards for performance measurement are indicated in the objectives and delineated on the individual progress checklist. Instructor assistance is provided as needed during the progress check, and students may be required to repeat all or parts of the behavior until satisfactory performance is attained.

6. Proficiency Level. Most task performance is taught to the "2b" proficiency level which means the student can perform most parts of the task but may need assistance on the hardest parts of the task (partially proficient). The student can also determine step-by-step procedures for doing the task.

7. Course Objective List. These objectives are listed in the sequence taught by Block of Instruction.

7.1. Initial Skills Course. A detailed listing of the initial skills course objectives may be obtained by written request to 312 TRS/DOE, Goodfellow AFB TX 76908-4213.

7.2. 7-Skill & 9-Skill Level Courses. N/A. RI 9S100 does not use skill levels.

Section C - Support Material

8. Air Force Qualification Training Packages (AFQTP)

8.1. The current listing of AFQTPs can be obtained at http://www.e-publishing.af.mil. These are not mandatory for this career field but may be of use for individuals needing qualification in areas that are covered by an AFQTP.

8.2. Computer Based Training Products

8.2.1. Air Force e-learning: https://usafprod.skillport.com/skillportfe/main.action

8.2.3. Air Force Digital University: https://digitalu.af.mil/

Section D - Training Course Index

9. Purpose. The purpose of this section is to aid commanders, supervisors, and trainers, by providing a list of training courses available to 9S100 personnel. Many of the courses listed in this section are often required to satisfy command/organizational or position-unique training requirements that are not part of formal initial skills or upgrade training. Supervisors should engage their unit/base training manager or command functional manager for additional guidance. Refer to the Education and Training Course Announcements located at https://cs2.eis.af.mil/sites/app10-ETCA/SitePages/Home.aspx for a complete list of USAF Formal Schools. NOTE: Although not all inclusive, the courses listed represent much of the formal training recognized by the functional community as applicable to RI 9S100.

10. Air Force In-Residence Courses (not all inclusive, see ETCA for additional courses).

COURSE ID	TITLE	LOCATION
E3AZR1C8XX 00DA	High Reliability Soldering and Connections	Keesler AFB, MS
J3AZR3D157 0C0B	Tower Climbing and Tower Certifier Training Course	Sheppard AFB, TX
SOC	Space Operations Course	Peterson AFB, CO
SOED-ATSOF	AFRICOM Theatre Course	Hurlburt Field, FL
SOED-CTSOF	CENTCOM Theatre Course	Hurlburt Field, FL
SOED-DIT	Dynamics of International Terrorism (DIT)	Hurlburt Field, FL
SOED-ETSOF	EUCOM Theatre Course	Hurlburt Field, FL
SOED-PTSOF	PACOM Theatre Course	Hurlburt Field, FL
SP200	Space 200	Peterson AFB, CO
SP300	Space 300	Peterson AFB, CO
S-V80-A	SERE Training	Fairchild AFB, WA
S-V83-A	Special Survival Training	Fairchild AFB, WA
S-V87-A	Arctic Survival Training	Eielson AFB, AK
S-V88-AL	Evasion and Conduct After Capture	Lackland AFB, TX
S-V90-A	Water Survival Training	Fairchild AFB, WA
X3AZR1NXXX 0B1A	ISR Advanced Career Development Program Course (A-CDP)	Goodfellow AFB, TX
X3AZR9S100 0A1F	Geophysical Systems Maintenance	Goodfellow AFB, TX
X3AZR9S100 0A2D	Applied Data Analysis	Goodfellow AFB, TX
X3AZR9S100 0A3E	Special Equipment Maintenance	Goodfellow AFB, TX
X3AZR9S100 0A6A	General Maintenance Principles	Goodfellow AFB, TX
X5OZD14N3 0A3A	Intelligence Analyst Course (IAC)	Joint Base Anacostia-Bolling, DC
X6ONW14NX 0A1A	Analysis 200 - Critical Thinking and Structured Analysis Course	Virtual

11. Extension Course Programs.

This area is reserved for future use.

12. Exportable Courses.

This area is reserved for future use.

13. Courses under Development/Revision.

This area is reserved for future use.

Section E – MAJCOM Unique Requirements

This area is reserved for future use.

NOTE: There are currently no MAJCOM unique requirements.

BY ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

//SIGNED//
MATTHEW E. PARR, CMSgt, USAF
ISR Career Field Manager (1N/9S)

Attachments:
1. Qualitative Requirements
2. RI 9S100 Scientific Applications Fundamentals JETS
3. RI 9S100 Applied Data Analysis JETS
4. RI 9S100 Geophysical Data Analysis JETS
5. RI 9S100 General Maintenance Principles JETS
6. RI 9S100 Geophysical Systems Maintenance JETS
7. RI 9S100 Special Equipment Maintenance JETS

ATTACHMENT 1, QUALITATIVE REQUIREMENTS

THIS BLOCK IS FOR IDENTIFICATION PURPOSES ONLY		
NAME OF TRAINEE		
PRINTED NAME (*Last, First, Middle Initial*)	**INITIALS *(Written)***	**SSAN (Last 4)**
PRINTED NAME OF CERTIFYING OFFICIAL AND WRITTEN INITIALS		
N/I	*N/I*	
N/I	*N/I*	
N/I	*N/I*	
N/I	*N/I*	

PROFICIENCY CODE KEY		
	SCALE VALUE	**DEFINITION: The individual**
TASK PERFORMANCE LEVELS	**1**	Can do simple parts of the task. Needs to be told or shown how to do most of the task. (EXTREMELY LIMITED)
	2	Can do most parts of the task. Needs only help on hardest parts. (PARTIALLY PROFICIENT)
	3	Can do all parts of the task. Needs only a spot check of completed work. (COMPETENT)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. (HIGHLY PROFICIENT)
***TASK KNOWLEDGE LEVELS**	**a**	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
****SUBJECT KNOWLEDGE LEVELS**	**A**	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

EXPLANATIONS

* A task knowledge scale value may be used alone or with a task performance scale value to define a level of knowledge for a specific task. (Example: b and 1b)

** A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task, or for a subject common to several tasks.

- This mark is used alone instead of a scale value to show that no proficiency training is provided in the course.

X This mark is used alone in course columns to show that training required but not given due to limitations in resources.

ATTACHMENT 2, RI 9S100 SCIENTIFIC APPLICATIONS FUNDAMENTALS JETS

Task Number	1. Tasks, Knowledge and Technical References	2. Task		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
SCIENTIFIC APPLICATIONS SPECIALIST FUNDAMENTALS										
ELECTRONIC PRINCIPLES										
2.1	**ELECTRONICS SUPPORT SUBJECTS TR: TO 31-1-141-1, 00-25-234**									
2.1.1	Safety								B	
2.1.2	First Aid								A	
2.1.3	Lockout Tagout Awareness								A	
2.1.4	Electrostatic Discharge Control								B	
2.1.5	Electromagnetic Effects								B	
2.1.6	**Metric Notation TR: TO 31-1-141-2, 31-1-141-5**									
2.1.6.1	Calculate Powers of Ten								2b	
2.1.6.2	Electrical Prefixes								B	
2.1.6.3	Measure circuit components								2b	
2.2	**BASIC CIRCUITS TR: TO 31-1-141-2, 31-1-141-5, 31-1-141-9**									
2.2.1	**Direct Current (DC)**									
2.2.1.1	Theory								B	
2.2.1.2	Perform Calculations								2b	
2.2.2	**Alternating Current (AC)**									
2.2.2.1	Theory								B	b
2.2.2.2	Perform Calculations								2b	
2.3	**BASIC COMPONENTS TR: TO 31-1-141-2, 31-1-141-5**									
2.3.1	Resistor Theory								B	
2.3.2	Resistor Color Coding								A	
2.3.3	Inductor Theory								B	
2.3.4	Capacitor Theory								B	
2.3.5	**Resistive-Capacitive-Inductive (RCL) Circuits Theory**									
2.3.5.1	Basic								B	
2.3.5.2	Resonant								B	
2.3.5.3	Frequency Sensitive Filter								B	
2.4	**ELECTROMAGNETIC DEVICES TR: TO 31-1-141-2, 31-1-141-3, 31-1-141-9**									
2.4.1	Transformer Theory								B	
2.4.2	Relay and Solenoid Theory								B	
2.4.3	**Motor & Generator Theory**									
2.4.3.1	Direct Current (DC)								B	
2.4.3.2	Alternating Current (AC)								B	
2.4.4	Special Purpose Motors								A	
2.4.5	Transducer Theory								B	
2.5	**SOLID STATE DEVICESTR: TO 31-1-141-4**									
2.5.1	Diode Theory								B	

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				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
2.5.2	Bipolar Junction Transistor Theory								B	
2.5.3	Special Purpose (LED and Zener Diode) Device Theory								A	
2.5.4	Integrated Circuits (IC)								A	
2.6	**BASIC RADIO FREQUENCY THEORY TR: TO 31-1-141-4, 31-1-141-7, 31-1-141-9, 31-1-141-11, 31-1-141-12, 31-1-141-13**									
2.6.1	Antennas								B	
2.6.2	Transmission Lines								B	
2.6.3	Data Busses								B	
2.6.4	Modulation								B	
	AIR FORCE INDOCTRINATION									
2.7	**TRAINING TR: AFI36-2101, CFETP RI9S100**									
2.7.1	**Responsibilities**									
2.7.1.1	Trainee								A	
2.7.1.2	Trainer								A	
2.7.1.3	Supervisor								A	
2.7.2	Evaluate Training Program								-	
2.7.3	Identify Training Requirements								-	
2.7.4	**Plan and Supervise OJT**									
2.7.4.1	Prepare Job Qualification Standards								-	
2.7.4.2	Conduct Training								-	
2.7.4.3	**Monitor Effectiveness of Training**									
2.7.4.3.1	Career Knowledge								-	
2.7.4.3.2	Job Proficiency Upgrade/Qualification								-	
2.7.4.3.3	Evaluate Effectiveness of Training Programs								-	
2.8	**AIR FORCE OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAMTR: AFI91-202, AFI91-203**									
2.8.1	Risk Management TR: AFI 90-802								B	
2.8.2	Principles and Objectives of Safety Programs								A	
2.8.3	Hazardous Waste Operations and Emergency Response TR: AFI 32-7086								A	
2.8.4	DOD Federal Hazards Communication Training Program TR: AFI90-821								A	
2.8.5	Fire Extinguisher Orientation								B	
2.8.6	Perform First Aid/CPR TR: American Heart Association Instructor's Manual								2b	
2.9	**LOGISTICS**									
2.9.1	Processes and Principles TR: AFD Annex 4-0								A	

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				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
2.9.2	**Supply** **TR: AFI 23-101**									
2.9.2.1	Basic AF Supply System Principles								A	
2.9.2.2	Use AF Supply System Procedures								-	
2.10	**PUBLICATIONS**									
2.10.1	AF Publications TR: AFI 33-360, Air Force e-Publishing								A	
2.10.2	MAJCOM Publications and Local Operating Instructions TR: Air Force e-Publishing								A	
2.10.3	TOs/Tis TR: TO 00-5-1								A	
2.11	**SUPERVISION AND MANAGEMENT**									
2.11.1	Career Information and Progression TR: AFI 36-2101, RI9S100 CFETP Part 1								A	
2.11.2	**Brief Newly Assigned Personnel**									
2.11.2.1	Mission								-	
2.11.2.2	Orientation to Work Center								-	
2.11.2.3	Security								-	
2.11.2.4	Safety								-	
2.11.2.5	Responsibilities								-	
2.11.3	Assign Personnel to Positions								-	
2.11.4	Orient New Personnel								-	
2.11.5	**Plan/Schedule**									
2.11.5.1	Work Assignments								-	
2.11.5.2	Shifts								-	
2.11.5.3	Priorities								-	
2.11.6	**Establish/Interpret**									
2.11.6.1	Work Methods/Controls								-	
2.11.6.2	Performance Standards								-	
2.11.6.3	Priorities								-	
2.11.6.4	Local Operating Instructions								-	
2.11.7	Evaluate Space, Personnel & Resource Requirements								-	
2.11.8	Coordinate Work with Other Personnel								-	
2.11.9	Resolve Technical Problems Encountered by Subordinate Personnel								-	
2.11.10	**Prepare** **TR:** DAFH 33-337									
2.11.10.1	Trip Reports								-	
2.11.10.2	Briefings/Tours								-	
2.11.10.3	Personnel Action Requests								-	
2.11.10.4	Correspondence								-	

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				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
2.11.10.5	Messages								-	
2.11.11	Perform Self-Assessments								-	
2.11.12	Contract Management TR: AFMAN 64-108, FAR 37.101								-	
2.11.13	Project Authorizations								-	
2.11.14	Contractor Protocol								-	
TECHNICAL KNOWLEDGE										
2.12	**APPLIED SCIENCES** **TR: Young and Freedman. University Physics with Modern Physics, Pearson Education, Inc., 2016. TR: Muller. Physics and Technology for Future Presidents, Princeton University Press, 2010.**									
2.12.1	**Classical Physics** **TR: Wilson and Buffa. College Physics, Prentice Hall, 2000.**									
2.12.1.1	Classical Mechanics								B	
2.12.1.2	Classical Electromagnetism								B	
2.12.2	Chemistry and Thermodynamics TR: McQuarrie and Rock. General Chemistry, W.H. Freeman and Company, 1991.								B	
2.12.3	**Modern Physics**									
2.12.3.1	Electromagnetic Spectrum								B	
2.12.3.2	**Quantum Mechanics Theory**									
2.12.3.2.1	Wave Function of Particles								B	
2.12.3.2.2	Four Fundamental Forces								B	
2.12.3.2.3	Relativity								A	
2.12.3.2.4	Wave Properties								A	
2.12.3.2.5	Atomic Structure								A	
2.12.3.2.6	Radioactive Decay								A	
2.12.3.2.6.1	Measurement/Identification of Radionuclides								A	
2.12.3.2.7	Basics of Nuclear Spectroscopy								A	
2.12.3.2.8	Basics of Fission								A	
2.12.3.3	**Nuclear Physics**									
2.12.3.3.1	Fuels								B	
2.12.3.3.2	Byproducts								B	
2.12.3.3.3	Types of Reactors								B	
2.12.3.3.4	Moderators								B	
2.12.3.3.5	Components								B	
2.12.4	Laboratory Systems								B	
2.12.5	Material Science								B	
2.13	**PHENOMENOLOGY** **TR: Young and Freedman. University Physics with Modern Physics, Pearson Education, Inc., 2016. TR: Muller. Physics and Technology for Future Presidents, Princeton University Press, 2010.**									
2.13.1	Geophysical Applications								B	

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				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
2.13.1.1	Statics								B	
2.13.2	Radio Frequency and Microwave Applications								B	
2.13.3	Electro-Optic Applications								B	
2.13.4	Nuclear Applications								B	
2.13.5	Thermodynamics, Electrical, Chemical								B	
2.14	**ENERGY PHENOMENOLOGY**									
2.14.1	Remote Sensing TR: Sabins, Floyd F. Remote Sensing Principles and Interpretation 3rd Edition, Waveland Press, 2007.								B	
2.15	**Energy Propagation** **TR: The Ionosphere, Karl Rawer**									
2.15.1	Atmospheric Layers								B	
2.16	**DETECTION PHENOMENOLOGY**									
2.16.1	**Radio Frequency (RF) and Radar** TR: White, Joseph F. High Frequency Techniques: An introduction to RF and Microwave Engineering, Wiley-IEEE Press, 2004. TR: Richards, Mark A. Principles of Modern Radar: Basic Principles, SciTech Publishing, 2010. TR: Stimson, G.W. Introduction to Airborne Radar. 2nd Ed., The Institution of Engineering and Technology, 1998. TR: Jeffrey, Tom. Phased-Array Radar Design: Application of Radar Fundamentals, Scitech Pub Inc, 2009.									
2.16.1.1	Capabilities								B	
2.16.1.2	Electromagnetics								B	
2.16.1.3	Platforms								B	
2.16.2	**Electro-Optics, Infrared & Spectral** TR: Duree, Galem C. Jr. Optics for Dummies, For Dummies, 2011. TR: Vincent, J. D. Fundamentals of Infrared, Detector Operations and Testing 2nd Ed., Wiley, 2012. TR: Schowengerdt, Robert A. Remote Sensing: Models and Methods for Image Processing 3rd Ed., Academic Press, 2006.									
2.16.2.1	Capabilities								B	
2.16.2.2	Platforms								B	
2.17	**ORBITAL MECHANICS** TR: Adolph, S. ed. Jursa. Handbook of Geophysics and the Space Environment, Air Force Geophysics Laboratory, 1985. TR: Curtis, Howard. Orbital Mechanics for Engineering Students 2nd Ed.. Butterworth-Heinemann, 2009.									
2.17.1	**Coordinate Systems**									
2.17.1.1	Terrestrial Coordinate Systems								B	
2.17.1.2	Celestial Coordinate Systems								B	
2.17.2	**Orbital Parameters**									
2.17.2.1	Ellipse Parameters								B	
2.17.2.2	Orbital Elements								B	
2.17.3	**Orbital Characteristics**									
2.17.3.1	Ground Tracks								B	
2.17.3.2	Perturbations								B	
2.17.3.3	Types of Orbits								B	
2.17.4	**Orbital Geometry**									

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				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
2.17.4.1	Satellite Tracking								B	
2.17.4.2	Sensor Geometry								B	
2.17.4.3	Date/Time Formats								A	
2.17.4.4	Perform Data Analysis Exercise								2b	
2.17.4.5	Data (Cueing/Tipping)								B	
2.17.4.6	Reports								A	
2.18	**Command Line Interface (CLI) TR: Christopher Negus Linux Bible, Wiley**									
2.18.1	**Workstation Operations Fundamentals**									
2.18.1.1	Linux								B	
2.18.1.2	Bash								B	
2.18.1.3	Terminal								B	
2.18.1.4	Files, Links and Directories								B	
2.18.1.5	File System								B	
2.18.2	**Utilize CLI Commands**									
2.18.2.1	Built-in Resources (man, help, info)								b	
2.18.2.2	General OS Commands								2b	
2.18.2.3	Syntax								2b	
2.18.2.4	File System Navigation								2b	
2.18.2.5	File Creation and Manipulation								2b	
2.18.2.6	Aliasing								2b	
2.18.2.7	File Display								2b	
2.18.2.8	Finding Files								2b	
2.18.2.9	Utilize grep								2b	
2.18.2.10	File System Permissions and Ownership								2b	
2.18.2.11	Command Line Recall								2b	
2.18.2.12	Redirections and Pipes								2b	
2.18.2.13	Meta-characters: File matching and Brace Expansion								2b	
2.18.2.14	Special Characters								2b	
2.18.2.15	File Backup and Restore								2b	
2.18.2.16	Managing Running Processes								2b	
2.18.2.17	Customize and Maintain System Configuration								2b	
2.18.3	**Communication Commands**									
2.18.3.1	Secure File Transfer protocol (SFTP)								2b	
2.18.3.2	Secure Shell (SSH)								2b	
2.18.4	**Command Line Text Editing – vim**									
2.18.4.1	Command Mode								2b	
2.18.4.2	Text Editing Commands								2b	
2.18.5	**Shell Scripting**									
2.18.5.1	Executing Shell Scripts								2b	
2.18.5.2	Shell Variables								2b	

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2.18.5.3	Performing Arithmetic								2b	
2.18.5.4	Using Program Constructs								2b	
2.18.5.5	Shell Arguments								2b	
2.19	**PYTHON 3 PROGRAMMING** TR: Lutz, M. (2013). Learning Python, 5th Ed. O'Reilly Books. TR: Sweigart, A. (2015). Automate the Boring Stuff with Python: Practical Programming for Total Beginners. No Starch Press. TR: Math Adventures with Python; Trig for Dummies, Mastering; Numerical Computing with Python									
2.19.1	Keywords and Identifiers								B	
2.19.2	Integrated Development Environment (IDE) fundamentals								A	
2.19.3	**Variables & Primitive Data Structures**									
2.19.3.1	Strings								B	
2.19.3.2	Numbers								B	
2.19.3.3	Boolean Variable Type								B	
2.19.3.4	Expressions, Statements, Variable Assignment								B	
2.19.3.5	Manipulate Strings with split, join, concatenate, slice, and length Functions								2b	
2.19.3.6	Perform Integer and Float Arithmetic, Order of Operations, Exponentiation, and Modulus								2b	
2.19.3.7	Perform Comparison, Boolean & Logical Operations								2b	
2.19.4	**Data Structures & Operations** TR: McKinney, W. (2013). Python for Data Analysis. O'Reilly Books. TR: Johnson, J. Python Numpy Tutorial. Stanford University. http://cs231n.github.io/python-numpy-tutorial/									
2.19.4.1	Create and Manipulate Lists, Tuples, and Dictionaries								2b	
2.19.4.2	Implement Control Structures, Loops and Exceptions with if-elif- else statements, for/while loops, break/continue/pass statements, and exceptions								2b	
2.19.5	Create and Call Functions								2b	
2.19.6	Import Modules, Packages, and Libraries from Python Std Library								2b	
2.19.7	Classes and Class Methods								2b	
2.19.8	Read and Write Files								2b	
2.19.9	Common NumPy Applications								2b	
2.20	**Data Visualization** TR: Grus, J. (2019). Data Science from Scratch: First Principles with Python. O'Reilly Books. TR: Wood, M. A. (2015). Python and Matplotlib Essentials for Scientists and Engineers. Morgan & Claypool: San Rafael, CA.									
2.20.1	Create Plots (Line, Bar, Scatter, Histogram)								2b	
2.20.2	Create Multiple/Sub Plots								2b	

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				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
2.21	**Math for Data Analytics**TR: McKinney, W. (2013). Python for Data Analysis. O'Reilly Books.TR: Hostetler, Robert P. and Ron Larson, Precalculus (6th Ed), Houghton Mifflin Company, 2004.									
2.21.1	Solve Basic Algebra								2b	
2.21.2	Solve Basic Trigonometry								2b	
2.21.3	**Linear Algebra with Applications in Python** TR: Cherney, D. et al. (2013). Linear Algebra. Retrieved from https://www.math.ucdavis.edu/~linear/linear-guest.pdf TR: Head First Algebra									
2.21.3.1	Scalar and Vector Components/Operations (vector length/magnitude, scalar multiplication, vector addition/subtraction)								2b	
2.21.3.2	Vector Multiplication (dot product and cross product)								2b	
2.21.3.3	Unit Vectors								2b	
2.21.3.4	Arithmetic Matrix Operations (addition and subtraction)								2b	
2.21.3.5	Matrix Multiplication								2b	
2.21.3.6	Transpose of a Matrix								2b	
2.21.3.7	Identity Matrix								2b	
2.21.3.8	Spreadsheet Basics								B	
2.21.4	**Statistics** **TR:** Bruce, A. & Bruce, P. (2017). Practical Statistics for Data Scientists: 50 Essential Concepts. O'Reilly Books.									
2.21.4.1	Elements of Structured and Unstructured Data (variables, numerical values/data (continuous and discrete), categorical values/data (binary, ordinal), univariate/multivariate data.)								B	
2.21.4.2	Measures of Central Tendency (parameters and statistics)								2b	
2.21.4.3	Measures of Spread (variance, standard deviation, and interquartile range)								2b	
2.21.4.4	Data Distribution (counts, frequency, percentile, and box plots)								B	
2.21.4.5	Covariance								B	
2.21.4.6	Pearson Correlation Coefficient								B	
2.21.4.7	Outliers								B	
2.21.5	**Probability** **TR:** Boslaugh, S. (2013). Statistics in a Nutshell: A Desktop Quick Reference. O'Reilly Books. **TR:** Bruce, A. & Bruce, P. (2017). Practical Statistics for Data Scientists: 50 Essential Concepts. O'Reilly Books. **TR:** Lehman, E., et. al. (2017). Mathematics for Computer Science. Retrieved from https://courses.csail.mit.edu/6.042/spring17/mcs.pdf									
2.21.5.1	Terminology (dependence, independence, outcomes, and sample space)								B	

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2.21.5.2	Random Variable (discrete random variables and continuous random variables)								B	
2.21.5.3	Relative Frequency								B	
2.21.5.4	Probability Distribution								B	
2.21.6	**Set Theory, Venn Diagrams & Euler's Diagrams**									
2.21.6.1	Union								B	
2.21.6.2	Intersection								B	
2.21.6.3	Complement								B	
2.21.7	**Common Probability Distributions**									
2.21.7.1	**Discrete (Categorical)**									
2.21.7.1.1	Bernoulli								B	
2.21.7.1.2	Binomial								B	
2.21.7.2	**Continuous**									
2.21.7.2.1	Uniform								B	
2.21.7.2.2	Normal (Gaussian)								B	
2.22	**THE ISR PROFESSIONAL**									
2.22.1	**SECURITY PROCEDURES**									
2.22.1.1	Information Security (INFOSEC) **TR**: DoDM5200.01V1_AFMAN16-1404V1, V2, and V3; AFMAN 14-403								B	
2.22.1.2	Communications Security (COMSEC) **TR:** AFI 33-201V1								B	
2.22.1.3	Operational Security (OPSEC) **TR**: DoDM 5205.02, AFI 10-701								B	
2.22.1.4	Physical Security **TR:** AFH1 & AFMAN 14-403								B	
2.22.1.5	Personnel Security **TR:** AFI 31-501								B	
2.22.1.6	Emission Security **TR:** AFSSI 7700; AFMAN 17-1301 & AFH1								B	
2.22.1.7	Computer Security (COMPUSEC) **TR:** AFI 33-200 & AFSSI 8520, AFMAN 33-282								B	
2.22.1.8	Oversight Program **TR:** AFI 14-104, EO 12333, DoDD 5240.01, DoDD 5240.1-R								B	
2.22.1.9	SCI Classification **TR:** DoD 5200.1-R, EO 13526, ICD-703 http://www.intelink.sgov/sites/ssc/capco/default.aspx								B	

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				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
2.22.1.10	Derivative Security Classifications **TR:** DoD 5200.1-R, EO 13526, DODM 5200.01V1 & DODM 5200.01V2 http://www.intelink.sgov/sites/ssc/capco/default.aspx								B	
2.22.1.11	Safeguard Classified **TR:** DoD 5200.1-R, EO 13526, as amended, DAFMAN 16- 201								A	
2.22.1.12	Publicly Available Information (PAI) **TR**: DoDi 3115.18, AFMAN 14-405 https://www.milsuite.mil/book/group s/air-force-pai								A	
2.22.1.13	Legal Landscape Governing PAI Collection **TR**: DoDi 3115.18, AFMAN 14-405								A	
2.22.1.14	Role of OPSEC and PAI Collection **TR**: DoDi 3115.18, AFMAN 14-405								A	
2.22.2	**ORGANIZATIONS AND MISSIONS**									
2.22.2.1	Executive Branch **TR:** http://www.usa.gov/Agencies/Federal /Executive.shtml								A	
2.22.2.2	DAF Intelligence **TR:** JP 2-0, AFD Annex 2-0								A	
2.22.2.2.1	Role of Air Force A2								A	
2.22.2.3	Intelligence Community **TR:** EO 12333, JP 2-0, JP 2-1, JP 2-3, www.defense.gov								B	
2.22.2.4	Department of Defense (DOD) **TR:** http://www.defense.gov/About-DoD/DoD-101, JP 1, AFH1								A	
2.22.2.5	Joint Chiefs of Staff (JCS) **TR:** jcs.mil, AFH1								A	
2.22.2.6	Joint Operations **TR:** JP 3-0, AFH1									
2.22.2.7	Unified Commands **TR:** JP 1-0, AFH1								A	
2.22.2.7.1	Role of A2								A	
2.22.2.9	Joint Task Force (JTF) **TR:** JP 2-0, JP 3-0, JP 3-33, AFH1								A	
2.22.2.9.1	Role of J2								A	
2.22.2.11	USAF Major Commands (MAJCOM) /Component MAJCOMs (C-MAJCOM) **TR:** AFH1, AFDP 4-0, www.afhra.af.mil								A	
2.22.2.11.1	Role of MAJCOM A2								A	

ATTACHMENT 2, RI 9S100 SCIENTIFIC APPLICATIONS FUNDAMENTALS JETS

Task Number	1. Tasks, Knowledge and Technical References	2. Task		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
2.22.2.12	US Cryptologic System and Service Cryptologic Components (SCC) **TR:** NSA.smil.mil, AFI 14-128								A	
2.22.2.13	Title 10,18, 32, 50 **TR:** United States Code								A	
2.22.2.14	Coalition Forces **TR:** JP 2-1, JP 3-0 & DAFMAN 16-201								A	
2.22.2.15	ISR Synchronization with National Strategy **TR:** National Security Strategy, National Defense Strategy, National Military Strategy, National Intelligence Strategy and ISR Dominance Flight Plan								A	
2.22.2.16	Air Force Intelligence, Surveillance & Reconnaissance TR: JP 2-0, Annex 2-0, HAFMD 1-33, AFPD 14-2 & AFI 14-202V3								A	
2.22.2.17	National Agencies and Organizations TR: EO 12333, JP 2-0, JP 2-1, JP 2-01, Annex 2-0, https://www.defense.gov https://www.dni.gov/files/ODNI/documents/National_Intelligence_Strategy_2019.pdf								A	
2.22.2.18	9S100 role in ISR Orgs								B	
2.22.3	**INTELLIGENCE SURVEILLANCE, RECONNAISSANCE (ISR) OPERATIONS**									
2.22.3.1	National and Theatre Assets TR: Joint Tactical Exploitation of National Systems (JTENS), AFTTP 3-1 Series								A	
2.22.3.2	Operational Applications **TR:** Joint Publication 2-0, intelligencecareers.gov								A	
2.22.4	**OPERATIONS PLANNING**									
2.22.4.1	Fundamentals of mission, objective, purpose, and Commander's Intent **TR:** JP 3-0								A	
2.22.4.2	Fundamentals of Combatant Command Strategic Planning **TR:** CJCSI 3100.01D & JP 5-0								A	
2.22.5	**Elements of Joint Operations Planning**									
2.22.5.1	Planning for a Contingency **TR:** AFI 10-402, JP 3-0, JP 5-0									
2.22.5.2	Warning Order, Alert Order, Execute Order **TR:** AFH1, AFI 10-401, JP 5-0								A	
2.22.5.3	Air Tasking Order (ATO) **TR:** AFTTP 3-1.AOC, JP 3-30, JP 3-52								A	

ATTACHMENT 2, RI 9S100 SCIENTIFIC APPLICATIONS FUNDAMENTALS JETS

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				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
2.22.5.4	Operation Plan and Operation Order (OPLAN/OPORD) **TR:** AFI 10-401 & JP 5-0								A	
2.22.5.5	Joint Air Operations Plan **TR:** AFTTP 3-1.AOC & JP 3-30								A	
2.22.5.6	Concept of Operations **TR:** JP 5-0								A	
2.22.5.7	Mission Type Orders **TR:** JP 1-02								A	
2.22.5.8	Air Tasking Cycle **TR:** JP 3-30, JP 3-60								A	
2.22.6	**Command Authority**									
2.22.6.1	Combatant Command (COCOM) **TR:** AFH1**;** JP 3-0								A	
2.22.6.2	Operational Control (OPCON) **TR:** AFH1; JP 3-0								A	
2.22.6.3	Tactical Control (TACON) **TR:** AFH1; JP 3-0								A	
2.22.6.4	Administrative Control (ADCON) **TR:** AFH1**;** JP 1-0; JP 3-0								A	
2.22.6.5	Identify Allied War Fighting Strategies and Tactics **TR:** JP 3-0								A	
2.23	**DATA COLLECTION** **TR:** Joint Tactical Exploitation of National Systems (JTENS)									
2.23.1	Electromagnetics								B	
2.23.2	Basic Sensor Design								B	
2.23.3	**Data Acquisition**									
2.23.3.1	Theory								B	
2.23.3.2	Signal Conditioning								B	
2.23.3.3	Sampling								B	
2.23.4	Collection Parameters								B	
2.23.5	Write/Brief on ISR Reporting								2b	
2.24	**CRITICAL THINKING & ANALYSIS** **TR:** Richards J. Heuer, Jr., "Psychology of Intel Analysis," A. Tversky and D. Kahneman "Judgment Under Uncertainty: Heuristics and Biases," DIA "Cognition for Analysts," DIA "Core Techniques," DIA "Analytic Design," IC Analytic Tradecraft Gateway "Cognitive Bias," USG "Tradecraft Primer Structured Analytic Techniques"									
2.24.1	Elements of Thought								B	
2.24.2	Intellectual Standards and Traits								B	
2.24.3	Identify Bias and Common Fallacies								B	
2.24.4	Inductive and Deductive Reasoning								B	
2.24.5	Analytical Standards								B	
2.24.6	Writing for ISR Professionals								B	

ATTACHMENT 2, RI 9S100 SCIENTIFIC APPLICATIONS FUNDAMENTALS JETS

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				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
2.25	**FUNDAMENTALS OF DATA/DATA ANALYSIS** **TR:** The Data Literacy Course: Learn How to Work With Data: https://digitalu.udemy.com/course/the-data-literacy-course-learn-how-to-work-with-data									
2.25.1	Description of Data Analysis								B	
2.25.2	Types of Data								A	
2.25.3	Significance of Data and VAULTIS								B	
2.25.4	Value of Data Quality								A	
2.25.5	Incomplete Data/Information Gaps								A	
2.25.6	Research, Manage, Process Data methods, Sources and Tools								A	
2.26	**ISR FUNDAMENTALS**									
2.26.1	**ISR Disciplines/AFSCs**									
2.26.1.1	Capabilities and Limitations of SIGINT								B	
2.26.1.2	Capabilities and Limitations of MASINT								B	
2.26.1.3	Capabilities and Limitations of HUMINT								B	
2.26.1.4	Capabilities and Limitations of GEOINT								B	
2.26.1.5	Capabilities and Limitations of OSINT								B	
2.26.1.6	PAI Concepts and Technologies								A	
2.26.1.7	PAI Collection Resources								A	
2.26.2	**Cyberspace Fundamentals**									
2.26.2.1	Layers of Cyberspace								A	
2.26.2.2	Industry Standard Protocols								A	
2.26.2.3	Network Topologies, Types, Connections, Devices								A	
2.26.2.4	Integration with Other AFSCs								B	
2.26.3	**ISR Process**									
2.26.3.1	Planning and Directions								A	
2.26.3.2	Collection								A	
2.26.3.3	Processing and Exploitation								A	
2.26.3.4	Analysis and Integration								A	
2.26.3.5	Dissemination and Integration								A	
2.26.3.6	Evaluations and Feedback								A	
2.27	**ISR RESILIENCY**									
2.27.1	Resiliency for ISR Professionals								A	

ATTACHMENT 3, RI 9S100 APPLIED DATA ANALYSIS JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
APPLIED DATA ANALYSIS (ADA)										
3.1	**SECURITY**									
3.1.1	RI 9S100 OPSEC **TR: Applicable Security Classification Guide**								B	
3.2	**Data Acquisition**									
3.2.1.1	Theory								B	
3.2.1.2	Signal Conditioning								B	
3.2.1.3	Sampling								B	
3.2.2	Collection Parameters								B	
3.2.3	Write/Brief on ISR Reporting								2b	
3.3	**DATA WRANGLING, ANALYSIS & MANAGEMENT**									
3.3.1	**Data Wrangling/Cleaning with Python's "pandas" Library** **TR: Bruce, A. & Bruce, P. (2017). Practical Statistics for Data Scientists: 50 Essential Concepts. O'Reilly Books. TR: https://etav.github.io/articles/ida_eda_method.html** **TR: McKinney, W. (2013). Python for Data Analysis. O'Reilly Books.** TR: Chapman, P. et. al. (2000) CRISP-DM. SPSS. Retrieved from https://www.the-modeling-agency.com/crisp-dm.pdf									
3.3.1.1	Rectangular and Nonrectangular Data								B	
3.3.1.2	Initial Data Analysis (IDA)								B	
3.3.1.3	Perform Dataframe Subsetting, Merging, Sorting, Geolocating and Filtering								2b	
3.3.2	**Data Analysis**									
3.3.2.1	Cross-Industry Standard Process for Data Mining (CRISP-DM)								B	
3.3.2.2	Geographically Referenced Data								B	
3.3.2.3	Plotting and Mapping								2b	
3.3.2.4	Bounding Boxes								2b	
3.3.2.5	Applications with Orbital Sensors								2b	
3.3.3	**Exploratory Data Analysis (EDA)** TR: Downey, A. (2014). Think Stats: Exploratory Data Analysis in Python. Green Tea Press: Needham, MA. Retrieved from http://greenteapress.com/thinkstats2/thinkstats2.pdf **TR: VanderPlas, J. (2017). Python Data Science Handbook: Essential Tools for Working with Data. O'Reilly Media: Sebastopol, CA**									
3.3.3.1	Correlation								2b	
3.3.3.2	Dimensionality Reduction								2b	
3.3.4	**Introduction to Statistical Testing** **TR: Kiernan, D. (n.d.). Natural Resources Biometrics. *The State University of New York.* Retrieved from: https://milnepublishing.geneseo.edu/natural- resources-biometrics/chapter/chapter-2-sampling-distributions-and-confidence-intervals** TR: Lane, D. M. Introduction to Statistics. Rice University. Retrieved from: http://onlinestatbook.com/Online_Statistics_Education.pdf									
3.3.4.1	Sampling Distribution								B	
3.3.4.2	Confidence Intervals								B	
3.3.4.3	**Hypothesis Testing**									

ATTACHMENT 3, RI 9S100 APPLIED DATA ANALYSIS JETS

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		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
3.3.4.3.1	z-test								B	
3.3.4.3.2	t-test								B	
3.3.4.3.3	Chi-Squared Test								B	
3.3.5	**Introductory SQL**									
	TR: Beaulieu, A. (2009). Learning SQL (2nd Ed.). O'Reilly Media: Sebastopol, CA.									
3.3.5.1	CREATE TABLE and INSERT								2b	
3.3.5.2	UPDATE								2b	
3.3.5.3	DELETE								2b	
3.3.5.4	GROUP BY								2b	
3.3.5.5	ORDER BY								2b	
3.3.5.6	JOIN								2b	
3.3.5.7	Subqueries								2b	
3.3.5.8	Indexes								2b	
3.3.5.9	Query Optimization								2b	
3.3.5.10	NoSQL Databases								A	
3.3.6	**Object oriented Programming**									
3.3.6.1	Custom Datatypes								2b	
3.3.6.2	Graph Theory								B	
3.3.6.3	Searching, Sorting, and Pathing Algorithms								b	
3.4	**INTRODUCTORY TO MACHINE LEARNING**									
	TR: Grus, J. (2019). Data Science from Scratch: First Principles with Python. O'Reilly Books.									
	TR: Geron, A. (2017). Hands-On Machine Learning with Scikit-Learn and TensorFlow. O'Reilly Media Inc: Sebastopol, CA.									
3.4.1	**Supervised Models**									
3.4.1.1	Classification vs Regression								B	
3.4.2	**Unsupervised Models**									
3.4.2.1	Clustering vs Association								B	
3.4.2.2	Training, Validation, and Test Data								B	
3.4.2.3	Overfitting and Underfitting								B	
3.4.2.4	Bias-Variance Tradeoff								B	
3.4.3	**Regression**									
3.4.3.1	Linear Regression (Numerical Data)								B	
3.4.3.2	Logistic Regression (Categorical Data)								B	
3.4.4	**Classification**									
3.4.4.1	K-Nearest Neighbors (KNN)								B	
3.4.4.2	Support Vector Machines (SVM)								B	
3.4.5	**Regression Performance & Diagnostics**									
3.4.5.1	R-Squared Value (Goodness of Fit)								2b	
3.4.5.2	Adjusted R-Squared Value								2b	
3.4.6	**Classification Performance & Diagnostics**									
	TR: Bowles, M. (2015). Machine Learning in Python. Wiley & Sons, Inc. Retrieved from https://pythonizame.s3.amazonaws.com/media/Book/machine- learning-python-essential-techniques-predictive-analysis/file/008c0aac-9784-11e5-964d-04015fb6ba01.pdf									
3.4.6.1	True Positive								2b	
3.4.6.2	False Positive								2b	

ATTACHMENT 3, RI 9S100 APPLIED DATA ANALYSIS JETS

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		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
3.4.6.3	False Negative								2b	
3.4.6.4	True Negative								2b	
3.4.6.5	Receiver Operating Characteristic (ROC) Curve								2b	
3.5	Perform Data Analysis Exercise								2b	
3.6	**SYSTEM ADMINISTRATION**									
	TR: Vugt. *Red Hat Enterprise Linux 6*, John Wiley & Sons, Inc., 2013. Negus. Linux Bible, John Wiley & Sons, Inc., 2015.									
3.6.1	Perform Startup/Shutdown Procedures								-	
3.6.2	Maintain System Configuration								-	
3.6.3	Manage System Processes								-	
3.6.4	Manage System Devices								-	
3.6.5	Use Backup, Restore and Tar Utilities								-	
3.6.6	Maintain System Security								-	
3.6.7	System Diagnostics								-	

ATTACHMENT 4, RI 9S100 GEOPHYSICAL DATA ANALYSIS JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
GEOPHYSICAL DATA ANALYSIS (GDA)										
4.1	**SECURITY**									
4.1.1	RI9S100 OPSEC **TR: Applicable Security Classification Guide**								B	
4.2	**SEISMIC**									
	TR: TI 2-NDC-TNG1; DO OI 10-2; CENI 10-102; Eiby, G.A., *Earthquakes*, Van Nustrand Reeinhold, 1980. TR: Richter, Charles F. *Elementary Seismology,* W.H. Freeman and Company, 1958.									
	TR: Bolt, Bruce. *Nuclear Explosions and Earthquakes*, W.H. Freeman and Company, 1976. TR: Lay, Thorne and Wallace. *Modern Global Seismology*, Academic Press, 1995.									
	TR: Simon, Ruth B. *Earthquake Interpretations*. Woodward-Clyde consultants, 1981.									
	TR: Dahlman, Olda and Hans Israelson, *Monitoring Underground Nuclear Explosions,* Elseevier Scientific Pub Co, 1977. TR: Douglas, Alan. *Forensic Seismology and Nuclear Test Bans*, Cambridge, 2013.									
4.2.1	**Theory and Application**									
4.2.1.1	Geognosy								B	
4.2.1.2	Wave Mechanics								B	
4.2.1.3	Data Processing								A	
4.2.1.4	Field Subsystem								A	
4.2.1.5	HQ Subsystem								A	
4.2.1.6	Array Characteristics								B	
4.2.1.7	Workflow Familiarization								A	
4.2.1.8	Understand Seismic Technique Mission								A	
4.2.1.9	Understand Seismic Field Site Equipment & Function								A	
4.2.1.10	Recognize Seismic Equipment Locations								A	
4.2.1.11	Understand Emergency Response								B	
4.2.2	**Data Analysis**									
4.2.2.1	Theory and Application								B	
4.2.2.2	Distinguish Signal from Noise and Background								B	
4.2.3	**Differentiate Between Natural and Man-Made Events**									
4.2.3.1	Recognize Test Sites and Areas of Interest								-	
4.2.3.1.1	Evaluate events inside of Test Sites and Areas of Interest								-	
4.2.3.2	Identify Special Interest Events								B	
4.2.3.3	Perform Signal Measurement								B	
4.2.3.4	Recognize/Identify Later Phases								B	
4.2.3.5	Determine Signal Types								B	
4.2.3.6	Recognize/Interpret Short Period Arrivals								B	

ATTACHMENT 4, RI 9S100 GEOPHYSICAL DATA ANALYSIS JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
4.2.3.7	Determine Signal Azimuth								B	
4.2.3.8	Associate Short Period								-	
4.2.3.9	Associate and Refine Primary Arrivals								B	
4.2.3.10	Form Events								-	
4.2.3.11	Introduction to Unassociated Detections								-	
4.2.3.12	Series Scanning								-	
4.2.4	**Apply Event Refinement Techniques**									
4.2.4.1	Determine Event Validity								-	
4.2.4.2	Determine Event Location								-	
4.2.4.3	Determine Event Distance								-	
4.2.4.4	Determine Event Depth								-	
4.2.4.5	Determine Event Magnitude								-	
4.2.5	**Use Analysis Tools**									
4.2.5.1	Use Process Manager (PMan)								-	
4.2.5.2	Use ARS Pull-down Menus								-	
4.2.5.3	Use ARS Toolbar Functions								-	
4.2.5.4	Validate Automatic Signal Detection								-	
4.2.6	**Use Application Software**									
4.2.6.1	Use ARS Locator Dialog								-	
4.2.6.2	Use ARS Magnitude Dialog								-	
4.2.6.3	Use ARS Alpha List								-	
4.2.6.4	Use ARS Filters								-	
4.2.6.5	Use Xfk Display & Lead-Lag Menu								-	
4.2.6.6	Use WWMap								-	
4.2.6.7	Create Event Beams, FK Beams, Horizontal Beams, and Show Detection Beams								-	
4.2.6.8	Open and Save Analysis Intervals								-	
4.2.6.9	Use UNIX Workstation and Gnome Desktop Environment								-	
4.2.6.10	Perform Event Reporter 1 Procedures								-	
4.2.6.11	Perform Event Reporter 2 Procedures								-	
4.3	**ADVANCED ANALYSIS**									
4.3.1	Integrate Late Arriving Data								-	
4.3.2	Use Event List/Bulletin								-	
4.3.3	Use Post Analyst Processing								-	
4.3.4	Perform Quality Control and Feedback								-	
4.3.5	Recognize and Report System/Data Problems								-	
4.3.6	Perform “Look Forward” Analysis								-	

ATTACHMENT 4, RI 9S100 GEOPHYSICAL DATA ANALYSIS JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
4.3.7	Understand Spotlight Detections of Interest & Events of Interest								-	
4.3.8	Identify Primary Spotlight Stations								-	
4.3.9	Open/Save Regional Analysis Intervals and Spotlights								-	
4.3.10	Perform Spotlight Scanning								-	
4.3.11	Construct and Analyze Spotlight Events								-	
4.4	**OPERATIONS MANAGEMENT**									
4.4.1	**Systems, Data Flow, and Tools**									
4.4.1.1	Understand NDC Data Acquisition and Data Flow								-	
4.4.1.2	Understand NDC Hardware and Tech Power Supply								-	
4.4.1.3	Understand NDC Database Structure and Accounts								-	
4.4.1.4	Use Pipeline Pman								-	
4.4.1.5	Use Pipeline Workflow								-	
4.4.1.6	Use Pipeline Launch								-	
4.4.1.7	Use Data Acquisition Workflow								-	
4.4.1.8	Use Remove Pipeline Channels								-	
4.4.2	**Shift Supervision & Mission Continuity**									
4.4.2.1	Use Daily Shift Log								-	
4.4.2.2	Confirm Station Status Updates								-	
4.4.2.3	Supervise Manning and Perform Shift Change								-	
4.4.2.4	Ensure Mission Completion and Continuity								-	
4.4.3	**Troubleshooting; Transfer, Tour, SUS, and ROC Procedures; SIE Processing**									
4.4.3.1	Perform Automated Processing Troubleshooting								-	
4.4.3.2	Special Interest Event Processing								-	
4.4.3.3	Perform Mission Transfer Procedures								-	
4.4.3.4	Brief Geophysical Surveillance Mission								-	
4.4.3.5	Operate from Sustainment System								-	
4.4.3.6	Activate the Remote Operations Center								-	
4.4.3.7	Perform COPAFTAC Procedures								-	
4.4.3.8	Understand AOC Alert Process								-	
4.4.4	**Long Period**									
	TR: TI 2-NDC-TNG1; DO OI 10-2; CENI 10-102; Eiby, G.A., *Earthquakes*, Van Nustrand Reeinhold, 1980. TR: Richter, Charles F. *Elementary Seismology,* W.H. Freeman and Company, 1958.									

ATTACHMENT 4, RI 9S100 GEOPHYSICAL DATA ANALYSIS JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
	TR: Bolt, Bruce. *Nuclear Explosions and Earthquakes*, W.H. Freeman and Company, 1976. TR: Lay, Thorne and Wallace. *Modern Global Seismology*, Academic Press, 1995.									
	TR: Simon, Ruth B. *Earthquake Interpretations*. Woodward-Clyde consultants, 1981.									
	TR: Dahlman, Olda and Hans Israelson, *Monitoring Underground Nuclear Explosions,* Elseevier Scientific Pub Co, 1977. TR: Douglas, Alan. *Forensic Seismology and Nuclear Test Bans*, Cambridge, 2013.									
4.4.4.1	Theory and Application								A	
4.4.4.2	Signal Types								A	
4.4.4.3	Data Processing								A	
4.4.4.4	Perform Long Period Analysis								-	
4.4.5	**Hydroacoustic**									
	TR: DO OI 10-1; Paker, Sybil P. Ed. *The McGraw Hill Encyclopedia of Ocean and Atmospheric Sciences*, McGraw Hill, Inc, 1977.									
4.4.5.1	Theory and Application								A	
4.4.5.2	Understand Hydroacoustic Technique Mission								A	
4.4.5.3	Recognize Hydroacoustic Equipment Locations								-	
4.4.5.4	Perform Hydroacoustic Analysis								-	
4.4.5.5	Use Hydroacoustic Display Tool (HDT)								-	
4.4.5.6	Interpret Hydroacoustic Event Classification								-	
4.4.5.7	Perform CREW STAR								-	
4.4.5.8	Signal Types								A	
4.4.5.9	Data Processing								A	
4.4.6	**Infrasound**									
	TR: Infrasound Fundamentals, AFTAC.									
4.4.6.1	Theory and Application								A	
4.4.6.2	Understand Infrasound (Mission, Theory/Application, Requirements)								-	
4.4.6.3	Understand Infrasound Sensor Operation								-	
4.4.6.4	Understand Station Locations								-	
4.4.6.5	Understand Common Infrasound Applications								-	
4.4.6.6	Signal Types								A	
4.4.6.7	Data Processing								A	
4.4.6.8	Recognize, Interpret, and Differentiate Arrivals								-	
4.4.6.9	Use ARS Custom Filters								-	
4.4.6.10	Use ARS Spectrogram								-	
4.4.6.11	Add Sensors Outside ARS Network								-	
4.4.6.12	Use Report Tools								-	

ATTACHMENT 4, RI 9S100 GEOPHYSICAL DATA ANALYSIS JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
4.4.6.13	Perform Special Interest Event Analysis								-	

ATTACHMENT 5, RI 9S100 GENERAL MAINTENANCE PRINCIPLES JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
GENERAL MAINTENANCE PRINCIPLES (GMP)										
5.1	**ELECTRONICS TROUBLESHOOTING**									
	TR: TO 31-1-141-2, 31-1-141-5									
5.1.1	Resistors								2b	
5.1.2	Inductors								2b	
5.1.3	Capacitors								2b	
5.1.4	Transformers								2b	
5.1.5	Relays and Solenoids								2b	
5.1.6	**Transistor Amplifier Circuits**									
	TR: TO 31-1-141-1, 31-1-141-4									
5.1.6.1	Theory								B	
5.1.6.2	Stabilization								B	
5.1.6.3	Coupling								B	
5.1.7	**Power Supply Circuits Theory**									
	TR: TO 31-1-141-3, 31-1-141-4, 31-1-141-9									
5.1.7.1	Rectifiers								B	
5.1.7.2	Filters								B	
5.1.7.3	Voltage Regulators								B	
5.1.8	**Digital Logic Circuits Theory**									
	TR: TO 31-1-141-4, 31-1-141-9, 31-1-141-13									
5.1.8.1	Gates								B	
5.1.8.2	Digital-to-Analog (DA) and Analog-to-Digital (AD) Convertors Theory								B	
5.2	**SECURITY AND SAFETY**									
5.2.1	RI9S100 Maintenance OPSEC								B	
	TR: AFI 10-701									
5.2.2	General Safety Practices								B	
	TR: AFI 91-203									
5.2.3	Handle Compressed Gases								2b	
	TR: AFI 91-203									
5.2.4	Use Personal Protective Equipment								2b	
	TR: AFI 91-203									
5.2.5	Apply Hazardous Energy Control and Tags								2b	
	TR: AFI 91-203									
5.2.6	DOD Hazardous Communication Training Program								A	
	TR: AFI 90-821									
5.2.7	Hazardous Material, Waste Management and Emergency Response								A	

ATTACHMENT 5, RI 9S100 GENERAL MAINTENANCE PRINCIPLES JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
5.2.8	USAF Mishap Prevention Program **TR: AFI 91-203**								A	
5.2.9	Material Handling and Storage **TR: AFI 91-203**								A	
5.3	**MAINTENANCE PRACTICES**									
5.3.1	Troubleshooting Theory								B	
5.3.2	Corrosion Control Theory **TR: TO 1-1-689 Series**								B	
5.3.3	Workmanship Standards **TR: TO 00-25-234**								B	
5.3.4	**Tools** **TR: AFI 21-101, AFI 91-203, TO 32-1-101**									
5.3.4.1	Use Tools								2b	
5.3.4.2	Maintain Tools								2b	
5.3.4.3	Control Tools								2b	
5.3.5	Test Measurement Diagnostic Equipment Principles **TR: TO 00-20-14, AFI 21-101, ACCI 21-1709**								B	
5.3.6	Use Digital Multimeter								2b	
5.3.7	Use Amp Clamp								2b	
5.3.8	Electrostatic Discharge Control Principles **TR: TO 00-25-234, 00-25-259**								B	
5.3.9	Grounding Systems **TR: TO 31-10-24**								B	
5.3.10	Maintain Wiring and Cabling **TR: TO 00-25-234; TI 2W-1-1**								2b	
5.3.11	Solder and Desolder **TR: TO 00-25-234, TO 00-25-259**								2b	
5.3.12	Assemble Solderless Connectors **TR: TO 00-25-234, TO 00-25-259**								2b	
5.3.13	Use wiring/engineering drawing **TR: TO 00-25-234, TO 00-25-259**								2b	
5.3.14	Theory of Cable Management								2b	
5.4	**MAINTENANCE MANAGEMENT PRINCIPLES** **TR: AFI 21-210**									
5.4.1	Maintenance Organization **TR: ACCI 21-1709**								B	

ATTACHMENT 5, RI 9S100 GENERAL MAINTENANCE PRINCIPLES JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
5.4.2	Maintenance Evaluation Program **TR: ACCI 21-1709**								B	
5.4.3	Complete Maintenance Documentation **TR: TO 00-20-2**								2b	
5.4.4	Maintenance Data Collection **TR: TO 00-20-2**								B	
5.4.5	Configuration Control								B	
5.5	**SUPPLY AND TRANSPORTATION** **TR: AFMAN 23-110, ACCI 21-1709**									
5.5.1	**USAF Supply System**									
5.5.1.1	Forward Supply Point								B	
5.5.1.2	Bench/Shop Stock System								B	
5.5.1.3	Equipment Accounts								B	
5.5.2	**Supply Procedures**									
5.5.2.1	USAF Logistics								B	
5.5.3	**Shipping, Packing and Handling**									
5.5.3.1	Requirements								B	
5.5.3.2	Transportation Procedures								B	
5.5.3.3	Hazardous Materials Shipping Requirements								B	
5.6	**PUBLICATIONS** **TR: TO 00-5-1**									
5.6.1	TODO Functions								A	
5.6.2	Perform TODA Functions								2b	
5.6.3	Use Technical Publications								2b	
5.6.4	Submit AFTO 22								2b	
5.7	**TRAVEL REQUIREMENTS**									
5.7.1	Use Foreign Clearance Guide **TR: DoD Foreign Clearance Guide (online)**								A	
5.7.2	Foreign Travel Familiarization								A	

ATTACHMENT 6, RI 9S100 GEOPHYSICAL SYSTEMS MAINTENANCE JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
GEOPHYSICAL SYSTEMS MAINTENANCE (GSM)										
6.1	**MAINTENANCE MANAGEMENT PRINCIPLES**									
6.1.1	Specific Technique Maintenance Management								B	
	TR: CENI 21-110									
6.1.2	**Configuration Control**									
	TR: ACCI 21-1709, TO 00-20-2									
6.1.2.1	Jacket File Theory & Understanding								-	
6.1.2.2	Review/Update Equipment Location Record								-	
6.1.2.3	Review/Update AF Form 95								-	
6.1.2.4	Review/Update Site-Specific Historical Record								B	
6.1.2.5	Maintenance Information System								B	
6.1.2.6	MIS Work Order Creation								-	
6.1.2.7	MIS Parts Order								-	
6.1.2.8	MIS Inventory Verification								-	
6.1.2.9	MIS Request for Action								-	
6.2	**TRAVEL REQUIREMENTS**									
6.2.1	Pre-Trip Procedures								-	
6.2.2	Post-Trip Procedures								-	
6.3	**FIELD SUBSYSTEM**									
6.3.1	**Sensor Site**									
6.3.1.1	**Short Period Seismometer**									
	TR: TI 2S-SP-1									
6.3.1.1.1	Theory of Operation								B	
6.3.1.1.2	**Operate/Maintain**									
6.3.1.1.2.1	Remove and Replace Delta Rods								2b	
6.3.1.1.2.2	Remove and Replace Cross Flexures								2b	
6.3.1.1.2.3	Remove and Replace Cantilever Assembly								2b	
6.3.1.1.2.4	Center Mass								2b	
6.3.1.1.2.5	Adjust Natural Frequency								2b	
6.3.1.1.2.6	Measure Coil and Insulation Resistance								2b	
6.3.1.1.2.7	Troubleshoot								2b	
6.3.1.1.2.8	Remove and Replace								2b	
6.3.1.1.2.9	Case Removal and Replacement								2b	
6.3.1.1.2.10	O-Ring Care								2b	
6.3.1.1.2.11	Replacement of Spring Assembly								2b	

ATTACHMENT 6, RI 9S100 GEOPHYSICAL SYSTEMS MAINTENANCE JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
6.3.1.1.2.12	Replacement of Vertical Flexures								2b	
6.3.1.2	**Broadband Seismometer**									
6.3.1.2.1	**TrilliumBH TR: TBD**									
6.3.1.2.1.1	Theory of Operation								B	
6.3.1.2.1.2	Operate/Maintain								2b	
6.3.1.2.1.3	Troubleshoot								2b	
6.3.1.2.1.4	Remove and Replace								2b	
6.3.1.2.1.5	Logistics								-	
6.3.1.2.2	**Guralp**									
	TR: TI 2S-BB-CMG3TB Series									
6.3.1.2.2.1	Theory of Operation								B	
6.3.1.2.2.2	Operate/Maintain								2b	
6.3.1.2.2.3	Troubleshoot								2b	
6.3.1.2.2.4	Remove and Replace								2b	
6.3.1.2.2.5	Logistics								-	
6.3.1.2.3	**KS54000**									
	TR: TI 2S-LP-BB-1									
6.3.1.2.3.1	Theory of Operation								B	
6.3.1.2.3.2	Operate/Maintain								2b	
6.3.1.2.3.3	Troubleshoot								2b	
6.3.1.2.3.4	Remove and Replace								2b	
6.3.1.2.3.5	Logistics								-	
6.3.1.3	**Digitizer and Authenticator**									
	TR: TI 2S-AIM24S, 2S-AIMA, 2S-TBD									
6.3.1.3.1	Remove and Replace								2b	
6.3.1.3.2	**Digitizer - NM: Centaur**									
6.3.1.3.2.1	Theory								B	
6.3.1.3.2.2	Configuration								2b	
6.3.1.3.2.3	Troubleshooting								2b	
6.3.1.3.3	**Digitizer - SHI: AIM24S**									
6.3.1.3.3.1	Theory								B	
6.3.1.3.3.2	Configuration								2b	
6.3.1.3.3.3	Troubleshooting								2b	
6.3.1.3.4	**Authenticator - SHI: AIMA**									
6.3.1.3.4.1	Theory								B	
6.3.1.3.4.2	Configuration								b	
6.3.1.3.4.3	Troubleshooting								2b	
6.3.1.4	**Wellhead Termination Unit and Interface Box**									

ATTACHMENT 6, RI 9S100 GEOPHYSICAL SYSTEMS MAINTENANCE JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
	TR: TI 2-ADSS-1 Series									
6.3.1.4.1	Theory of Operation								B	
6.3.1.4.2	Operate/Maintain								2b	
6.3.1.4.3	Troubleshoot								2b	
6.3.1.5	**AC/DC Power Subsystems**									
	TR: TI 2P-UPS/12-1, 2P-SPS5087-1, 2P-UPS/Micro-1, 2W-1-1; TO00-25-234, 31-1-141-2, 31-1-141-3, 31-1-141-5, 31-1-141-9, 31-1-141-15									
6.3.1.5.1	Theory of Operation								B	
6.3.1.5.2	Operate/Maintain								b	
6.3.1.5.3	Troubleshoot								b	
6.3.1.6	**Solar Power Subsystems**									
	TR: TI 2P-UPS/12-1, 2P-SPS5087-1, 2P-UPS/Micro-1, 2W-1-1; TO00-25-234, 31-1-141-2, 31-1-141-3, 31-1-141-5, 31-1-141-9, 31-1-141-15									
6.3.1.6.1	Theory of Operation								B	
6.3.1.6.2	Operate/Maintain								-	
6.3.1.6.3	Troubleshoot								-	
6.3.2	**Central Data Collection Point**									
6.3.2.1	**Station Processor - SHI**									
	TR: TI 2WS Series, Foundations of CentOS Linux, Red Hat Enterprise Linux 6									
6.3.2.1.1	**Theory of Operation**									
6.3.2.1.1.1	Startup/Shutdown/Process Restarts								B	
6.3.2.1.1.2	Xave Data Path and Process Theory								B	
6.3.2.1.1.3	Station Processor Authentication Theory								B	
6.3.2.1.2	**Operate/Maintain**									
6.3.2.1.2.1	Command and Control Digitizer								2b	
6.3.2.1.2.2	Run and Validate Calibrations								1a	
6.3.2.1.2.3	Open/Verify/Interpret Logs								2b	
6.3.2.1.2.4	Troubleshoot								2b	
6.3.2.1.2.5	Execute Station Processor Scripts								b	
6.3.2.1.2.6	Perform Station Processor Commands								2b	
6.3.2.1.2.7	Remove/Replace Station Processor								-	
6.3.2.1.2.8	Configure XAVE								-	
6.3.2.1.2.9	Perform Daily Operations on Station Processor								2b	
6.3.2.1.2.10	Navigate gACI								2b	
6.3.2.1.2.11	Navigate gCal								2b	
6.3.2.1.2.12	Monitor Site Data Availability								A	
6.3.2.2	**Data Aggregator - NM**									
6.3.2.2.1	**Theory of Operation**									

ATTACHMENT 6, RI 9S100 GEOPHYSICAL SYSTEMS MAINTENANCE JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
6.3.2.2.1.1	Startup/Shutdown/Process Restarts								B	
6.3.2.2.1.2	Workstation Authentication Theory								B	
6.3.2.2.1.3	Data Aggregator Data Path and Process Theory								B	
6.3.2.2.2	**Operate/Maintain**									
6.3.2.2.2.1	Command and Control Digitizer								2b	
6.3.2.2.2.2	Run and Validate Calibrations								1a	
6.3.2.2.2.3	Open/Verify/Interpret Logs								2b	
6.3.2.2.2.4	Troubleshoot								2b	
6.3.2.2.2.5	Execute Data Aggregator Scripts								b	
6.3.2.2.2.6	Perform Data Aggregator Commands								2b	
6.3.2.2.2.7	Remove/Replace Data Aggregator								-	
6.3.2.2.2.8	Configure								-	
6.3.2.2.2.9	Perform Daily Operations on Data Aggregator								2b	
6.3.2.2.2.10	Navigate gACI*								2b	
6.3.2.2.2.11	Navigate gCal*								2b	
6.3.2.2.2.12	Monitor Site Data Availability								A	
6.3.2.3	**Communication Interface Module (CIM III) - SHI**									
	TR: TI 2S-CIM/2.1-1									
6.3.2.3.1	Theory of Operation								B	
6.3.2.3.2	Perform Setup								2b	
6.3.2.3.3	Remove and Replace								2b	
6.3.2.3.4	Operational Check								2b	
6.3.2.3.5	Perform Configuration								2b	
6.3.2.3.6	Troubleshoot								2b	
6.3.3	**Preventative Maintenance**									
6.3.3.1	Testing and Treating Earth Electrode Systems								2b	
6.3.3.2	Perform Solar Panel Performance Checks								2b	
6.3.3.3	Perform VSWR Test								2b	
6.3.3.4	Perform Operations and Control Subsystems Cleaning								2b	
6.3.3.5	Perform Subsurface Site Maintenance								2b	
6.3.3.6	Perform Seismometer Handling System Maintenance and Corrosion Control								2b	
6.3.4	**Support Equipment**									
6.3.4.1	Install/Remove/Operate Tilt Mast/Winch								2b	

ATTACHMENT 6, RI 9S100 GEOPHYSICAL SYSTEMS MAINTENANCE JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
6.3.4.2	Utilize/Operate Borehole Camera								2b	
6.3.4.3	Utilize/Operate Maintenance Laptop								2b	
6.3.4.4	Perform Exothermic Welding								-	
6.4	**NETWORK COMMUNICATIONS SYSTEM**									
	TR: White, Ron. *How Computers Work, 10th ed.*, Que Publishing, 2015. CompTIA Network+ N10-005 Certification Guide									
6.4.1	Communication Interfaces								B	
6.4.2	**WAN**									
6.4.2.1	Theory of Operation								B	
6.4.3	**LAN**									
6.4.3.1	Theory of Operation								B	
6.4.3.2	Operate/Maintain								2b	
6.4.3.3	Troubleshoot								2b	
6.4.4	**Communications Protocols**									
6.4.4.1	RS232 Theory								B	
6.4.4.2	TCP/IP Theory								B	
6.4.5	**Intra-site Communications**									
6.4.5.1	**Modem**									
	TR: TI 2-CSS-1									
6.4.5.1.1	Theory of Operation								B	
6.4.5.1.2	Operate/Maintain								2b	
6.4.5.1.3	Troubleshoot								2b	
6.4.5.2	**Wireless Transceiver (FreeWave Radios)**									
	TR: TI 2-CSS-1									
6.4.5.2.1	Theory of Operation								B	
6.4.5.2.2	Operate/Maintain								2b	
6.4.5.2.3	Troubleshoot								2b	
6.4.5.3	**Microhards**									
6.4.5.3.1	Operate/Maintain								2b	
6.4.5.3.2	Theory of Operations								B	
6.4.5.3.3	Configure								2b	
6.4.5.3.4	Install/Remove								2b	
6.5	**MAINTENANCE OPERATIONS CONTROL CENTER**									
	TR: TI 2-NDC-2									
6.5.1	Theory of Operation								B	
6.5.2	Monitoring/Reporting								B	
6.5.3	System Tools								B	
6.6	**TMDE**									
	TR: AFI 21-113, TO 32-1-101, Equip User's Manual									

ATTACHMENT 6, RI 9S100 GEOPHYSICAL SYSTEMS MAINTENANCE JETS

Task Number	1. Tasks, Knowledge, and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
6.6.1	Use Time Domain Reflectometer								2b	
6.6.2	Use Earth Tester								2b	
6.6.3	Use DC Power Supply								2b	
6.6.4	Use Audio Test Set/Communications Tester								2b	
6.6.5	Spectrum Analyzer								A	
6.6.6	Use Storage Oscilloscope								2b	
6.6.7	Use RF Watt Meter								2b	

ATTACHMENT 7, RI 9S100 SPECIAL EQUIPMENT MAINTENANCE JETS

Task Number	1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
SPECIAL EQUIPMENT MAINTENANCE (SEM)										
7.1	**MAINTENANCE MANAGEMENT PRINCIPLES**									
7.1.1	Specific Technique Maintenance Management TR: CENI 21-101								B	
7.1.2	**Maintenance Management** **TR: DAFI 21-101, CENI 21-101, TO 00-20-2**									
7.1.2.1	Generate Equipment Status Report								-	
7.1.2.2	MIS - Theory and Operation								A	
7.1.2.3	MIS - Review Equipment Status								-	
7.1.2.4	SOH - AGFU Theory & Operation								B	
7.1.2.5	SOH - AGFU Equipment Status Review								2b	
7.1.2.6	SOH - ACR Theory & Operation								B	
7.1.2.7	SOH - ACR Equipment Status Review								2b	
7.1.2.8	Perform Site Survey								-	
7.1.2.9	Pre/Post Trip Checklist								-	
7.1.2.10	Submit Request for Assistance								-	
7.1.2.11	Travel Clearance Systems - Operate and Load Travel Requests								-	
7.1.2.12	Support Agreements								A	
7.2	**NUCLEAR MATERIALS**									
7.2.1	Handling of Radioactive Sources								B	
7.2.2	Perform and Handle Swipes								-	
7.2.3	Clean Contaminated Equipment and Facilities								-	
7.3	**NUCLEAR MATERIALS PHENOMENOLOGY** **TR: Nuclear Energy and Proliferation Workshop notes, Nov 96.** **TR: Spector, Leonard. The Undeclared Bomb, Ballinger Publishing Co., 1988. TR: Gladstone and Dolan. Effects of Nuclear Weapons, US DoD, 1977.**									
7.3.1	Effects of Nuclear Weapons								B	
7.3.2	Nuclear Reactors								B	
7.3.3	Meteorological Effects and Sample Degradation								B	
7.3.4	**Sampling Theory** **TR: 3D-ACR-1, 3D-ACR-2, 1A-AARE-1**									
7.3.4.1	Cryogenic Distillation								B	
7.3.4.2	Particulate								B	
7.3.4.3	Whole Air								B	
7.3.5	**Analysis** **TR: Knoll. Radiation Detection and Measurement (2nd Ed), John Wiley and Sons, 1989.**									

ATTACHMENT 7, RI 9S100 SPECIAL EQUIPMENT MAINTENANCE JETS

Task Number	1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
7.3.5.1	Detector Theory								B	
7.3.5.2	Anti/Coincidence Counting								A	
7.3.5.3	Radioactive Decay and Daughter Products								B	
7.3.5.4	Calculate Half-life Decay Rates								2b	
7.3.5.5	Counting Statistics								A	
7.4	**GROUND BASED COLLECTION MISSIONS** **TR: AFTAC General Subject Security Classification Guide**									
7.4.1	National, DoD, and R&D Customer Relationships								B	
7.4.2	Reactor Products Program								B	
7.4.3	Nuclear Debris Collection and Analysis								B	
7.4.4	Nuclear Plant Program								B	
7.4.5	Missions and Treaties								B	
7.5	**GROUND BASED PLATFORM SAMPLES** **TR: CENI 10-23, CENI 10-23-1**									
7.5.1	**Sample Handling Procedures**									
7.5.1.1	Sample Lifecycle								B	
7.5.1.2	Perform Sample Handling Procedures								2b	
7.5.2	**Sample Contamination**									
7.5.2.1	Threats and Outcomes of Contamination								B	
7.5.2.2	Cleanroom Processes and Good Laboratory Practices								A	
7.6	**NETWORK COMMUNICATIONS SYSTEM**									
	TR: White, Ron. How Computers Work, 10th ed., Que Publishing, 2017. CompTIA Network+ N10-005 Certification Guide									
7.6.1	Communication Interfaces								B	
7.6.2	**WAN**									
7.6.2.1	Theory of Operation								B	
7.6.3	**LAN**									
7.6.3.1	Theory of Operation								B	
7.6.3.2	Operate/Maintain								2b	
7.6.3.3	Troubleshoot								2b	
7.6.4	**Communications Protocols**									
7.6.4.1	RS232 Theory								B	
7.6.4.2	TCP/IP Theory								B	
7.7	**NETWORK APPLICATIONS**									
	TR: CompTIA Network+ N10-005 Cert Guide									

ATTACHMENT 7, RI 9S100 SPECIAL EQUIPMENT MAINTENANCE JETS

Task Number	1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
7.7.1	System Control								B	
7.7.2	Perform Remote Troubleshooting								2b	
7.7.3	Perform Network Troubleshooting								2b	
7.7.4	Remove and Replace Router/Switch								2b	
7.7.5	Remove and Replace IP Camera								-	
7.7.6	Troubleshoot, Remove and Replace Voice Over IP (VOIP)								-	
7.7.7	Troubleshoot, Remove and Replace UPS SOH Monitor								-	
7.7.8	Establish local connection - AACR/AGFU								2b	
7.7.9	Long Haul Communications Theory/Circuit Familiarization								B	
7.8	**UNITERRUPTABLE POWER SUPPLY**									
7.8.1	Troubleshoot, Remove, Replace External UPS								2b	
7.8.2	External UPS Battery Replacement								2b	
7.9	**GASEOUS COLLECTION PLATFORMS**									
7.9.1	**Gaseous Collectors**									
	TR: TI 3D-ACR-1, 3D-ACR-2, 3D-ACR-6; CENI 10-23, 10-23-1									
7.9.1.1	Principles of Operation								B	
7.9.1.2	Relationship of Pressure, Volume, and Temperature								B	
7.9.1.3	Structural and Facility Power Requirements								B	
7.9.1.4	Operate Ground Based Collection Platforms								2b	
7.9.1.5	Use Forms								2b	
7.9.2	**Gaseous Collector Operator Maintenance**									
7.9.2.1	Perform Leak Check								2b	
7.9.2.2	Charge Helium System								2b	
7.9.2.3	Replace Air Compressor								2b	
7.9.2.4	Replace Inlet Air Filter								2b	
7.9.3	**Gaseous Collector Normal Maintenance**									
7.9.3.1	**Maintain Sample Air System**									
7.9.3.1.1	Sample Air System Fundamentals								B	
7.9.3.1.2	Perform Bottle Change								2b	
7.9.3.1.3	Perform Drier Column Replacement								2b	
7.9.3.1.4	Troubleshoot/Clear Blockage in the Heat Exchanger								2b	

ATTACHMENT 7, RI 9S100 SPECIAL EQUIPMENT MAINTENANCE JETS

Task Number	1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
7.9.3.1.5	Repair and Replace Sample Tray Components								2b	
7.9.3.1.6	Repair and Replacement of the Sample Tray Nylon Line								2b	
7.9.3.1.7	Remove/Repair/Replace Check Valve or Internals								2b	
7.9.3.1.8	Perform Air Compressor Procedures (Replace)								2b	
7.9.3.1.9	Perform Air System Leak Testing								2b	
7.9.3.1.10	Perform Analog Air Flowmeter Replacement								2b	
7.9.3.1.11	Remove/Repair/Replace Digital Flowmeter								2b	
7.9.3.2	**Maintain Helium System**									
7.9.3.2.1	Helium System Fundamentals								B	
7.9.3.2.2	Perform Venting Helium System								2b	
7.9.3.2.3	Perform Complete Charging Helium System								2b	
7.9.3.2.4	Perform Partial Charging Helium System								2b	
7.9.3.2.5	Perform Helium Filter Assembly Replacement								2b	
7.9.3.2.6	Perform Helium Compressor Replacement								2b	
7.9.3.2.7	Perform First And Second Stage Oil Separator Replacement								2b	
7.9.3.2.8	Perform Thermoswitch Replacement								2b	
7.9.3.2.9	Perform Coldhead Servicing								2b	
7.9.3.2.10	Perform Helium System Leak Testing								2b	
7.9.3.3	**Maintain Argon System**									
7.9.3.3.1	Argon System Fundamentals								B	
7.9.3.3.2	Perform Venting Argon System								2b	
7.9.3.3.3	Perform Complete Charging Argon System								2b	
7.9.3.3.4	Perform Partial Charging Argon System								2b	
7.9.3.3.5	Perform Argon System Leak Testing								2b	
7.9.3.3.6	Troubleshoot Flooding								-	
7.9.3.3.7	Remove/Repair/Replace Schrader Valve R2								-	
7.9.3.4	**Maintain Temperature Sensing System**									
7.9.3.4.1	Temperature Sensing System Fundamentals								B	
7.9.3.4.2	Remove/Repair/Replace Thermocouples								2b	

ATTACHMENT 7, RI 9S100 SPECIAL EQUIPMENT MAINTENANCE JETS

Task Number	1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
7.9.3.5	**Maintain Control System**									
7.9.3.5.1	Control System Fundamentals								B	
7.9.3.5.2	Explain Panel, Controls, and Indicators								B	
7.9.3.5.3	Perform System Start-Up and Shutdown								2b	
7.9.3.5.4	Explain/Identify - Normal Operation								B	
7.9.3.5.5	Explain/Identify - Emergency Operations								B	
7.9.3.5.6	Install/Remove Strategy File								1a	
7.9.3.5.7	Install/Remove HMI/Update Software								1a	
7.9.3.5.8	Install/Remove AACR Software Utilities								1a	
7.9.3.6	**ACD System Troubleshooting**									
7.9.3.6.1	Fundamentals of ACD System Troubleshooting								B	
7.9.3.6.2	Remove and Replace SnapPac								2b	
7.9.3.6.3	Remove and Replace SD Card								2b	
7.9.3.6.4	Remove and Replace Relays								2b	
7.9.3.7	**Maintain Power Distribution System**									
7.9.3.7.1	Power Distribution System Fundamentals								B	
7.9.3.7.2	Remove and Replace ACR Main Circuit Breaker								2b	
7.9.3.7.3	Removal and Installation of Modified DC Power Supply								2b	
7.9.3.7.4	Repair and Replace 110 Volt Auxiliary Power Outlet								-	
7.9.3.7.5	Remove and Replace Relays								2b	
7.9.3.7.6	Remove and Replace Fuses								2b	
7.9.3.7.7	Troubleshoot and Repair Power Distribution System								2b	
7.9.3.8	**Maintain Tubing, Fittings, and Valves**									
7.9.3.8.1	Repair Tubing and Fittings								2b	
7.9.3.8.2	Perform Repair and Replacement of Solenoid Valves								2b	
7.9.3.8.3	Perform Helium Line Cleaning								-	
7.9.3.8.4	Remove/Repair/Replace Hand Valves								2b	
7.9.3.8.5	Troubleshoot/Remove/Replace Relief Valves								2b	
7.9.3.8.6	Perform Copper bending, flaring, and Swagelok Installation								2b	
7.9.3.9	**Cryostat**									

ATTACHMENT 7, RI 9S100 SPECIAL EQUIPMENT MAINTENANCE JETS

Task Number	1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
7.9.3.9.1	Perform Cryostat Evacuation								2b	
7.9.3.9.2	Perform Cryostat Venting								2b	
7.9.3.9.3	Perform Seal-Off Valve Repair								1a	
7.9.3.9.4	Perform Cryostat Replacement								b	
7.9.3.9.5	Perform Vacuum Gauge M1 Replacement and Calibration								1a	
7.9.3.9.6	Perform Vacuum Gauge Tube Replacement								1a	
7.9.3.10	**Ancillary Equipment**									
7.9.3.10.1	Principles of Operation								B	
7.9.3.10.2	Basic Vacuum Theory								B	
7.9.3.10.3	Setup, Operate, and Store Evacuation Pump Kit								2b	
7.9.3.10.4	Use/Maintain Vacuum Reference Tube								1a	
7.9.3.11	**Preventative Maintenance Routines**									
7.9.3.11.1	PMR Fundamentals								B	
7.9.3.11.2	PMR Pressure Gauge P2 and P3 Calibration Checks								b	
7.9.3.11.3	PMR Sample Tray Line Visual Check								-	
7.9.3.11.4	PMR ACR Wiring Harness Inspection								2b	
7.9.3.11.5	PMR Cabinet Cleaning and Filter Replacement								2b	
7.9.3.11.6	PMR In-line Air Filter Replacement								2b	
7.9.3.11.7	PMR Second Stage Oil Separator, Helium Filter Insert Replacement and SV4, SV6 Inspection and Maintenance								2b	
7.9.3.11.8	PMR Perform Air Filter Assembly Insert Replacement								2b	
7.9.3.11.9	PMR Air Compressor Servicing								2b	
7.9.3.11.10	PMR Air Drier Servicing								2b	
7.9.3.11.11	PMR Air Compressor Replacement								2b	
7.9.3.11.12	Conduct Operator Training - ACR								-	
7.1	**PARTICULATE COLLECTION PLATFORMS**									
7.10.1	**Particulate Collectors**									
	TR: TI 13-AGFU-1, 13-AGFU-4, 13-AGFU-6, 13-AGFU-8									
7.10.1.1	Principles of Operation								B	
7.10.1.2	Structural and Facility Power Requirements								B	
7.10.1.3	Perform Remote Monitoring and State of Health								2b	

ATTACHMENT 7, RI 9S100 SPECIAL EQUIPMENT MAINTENANCE JETS

Task Number	1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
7.10.1.4	Operate Particulate Collections Equipment								2b	
7.10.2	**Particulate Collection Platform Maintenance**									
7.10.2.1	**Maintain Blower Assembly**									
7.10.2.1.1	Perform Blower Assembly Replacement								2b	
7.10.2.2	**Maintain Filter Paper Path**									
7.10.2.2.1	Filter Paper Path Fundamentals and Troubleshooting								2b	
7.10.2.2.2	Perform T-Bracket Replacement								a	
7.10.2.2.3	Perform T-Bracket Roller Replacement								a	
7.10.2.2.4	Perform T-Bracket and Filter Rack alignment								a	
7.10.2.2.5	Perform T-Bracket Control Box Assembly Replacement								2b	
7.10.2.2.6	Perform Gear Motor Replacement								2b	
7.10.2.2.7	Perform Drive Gear Replacement								2b	
7.10.2.2.8	Perform Gear Motor Troubleshooting								2b	
7.10.2.2.9	Perform Sample Head Assembly Replacement								-	
7.10.2.2.10	Perform Sample Head Roller Assembly Replacement								-	
7.10.2.2.11	Perform Pressure Transducer Replacement								-	
7.10.2.2.12	Remove/Replace Flowmeter								2b	
7.10.2.2.13	Perform Intake Plenum Assembly Replacement								2b	
7.10.2.2.14	Perform Exhaust Plenum Replacement								-	
7.10.2.2.15	Perform Filter Rack Roller Assembly Replacement								-	
7.10.2.3	**Maintain Control Subsystem**									
7.10.2.3.1	Control Systems Fundamentals								B	
7.10.2.3.2	Mission System Software Commands and Troubleshooting								2b	
7.10.2.3.3	Perform Thermal Sensor Replacement								2b	
7.10.2.3.4	Perform SIU Troubleshooting								-	
7.10.2.3.5	Perform Computer and Interface Box Removal and Replacement								2b	
7.10.2.3.6	Perform Cooling Fan Replacement								2b	
7.10.2.3.7	Configure New Computer or Hard Drive								2b	
7.10.2.4	**Maintain Analysis Subsystem**									
7.10.2.4.1	Analysis Subsystem Fundamentals								B	

ATTACHMENT 7, RI 9S100 SPECIAL EQUIPMENT MAINTENANCE JETS

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		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
7.10.2.4.2	Perform Detector Replacement Procedures								2b	
7.10.2.4.3	Perform Detector System Alignment								2b	
7.10.2.4.4	Perform MCA Replacement								2b	
7.10.2.4.5	Perform MCA Battery Replacement Procedures								a	
7.10.2.4.6	Perform Lead Shield Removal and Replacement								2b	
7.10.2.4.7	Perform Chiller Oil Clearing Procedures								a	
7.10.2.4.8	Perform Detector System Troubleshooting								a	
7.10.2.5	**Maintain Calibration Subsystem**									
7.10.2.5.1	Calibration Subsystem Fundamentals								B	
7.10.2.5.2	Perform Calibration and Auto PZ Adjustments								2b	
7.10.2.5.3	Perform Rise Time Adjustment								2b	
7.10.2.5.4	Perform Calibrator Assembly and Source Replacement								2b	
7.10.2.5.5	Perform Calibrator Motor Replacement								2b	
7.10.2.6	**Maintain Barcode Subsystem**									
7.10.2.6.1	Barcode Subsystem Fundamentals								B	
7.10.2.6.2	Perform Barcode reader replacement								2b	
7.10.2.6.3	Perform Optical Sensor Removal and Replacement (OMRON)								2b	
7.10.2.6.4	Perform Optical Sensor/Amplifier Programming (OMRON)								2b	
7.10.2.7	**Maintain Power Subsystem**									
7.10.2.7.1	Power Subsystem Fundamentals								B	
7.10.2.7.2	Perform System Startup and Shutdown								2b	
7.10.2.7.3	Perform General Operational Checkout								2b	
7.10.2.7.4	Perform Emergency Shutdown								2b	
7.10.2.7.5	Perform EPO Assembly Replacement								2b	
7.10.2.7.6	Perform UPS Replacement (Internal)								2b	
7.10.2.7.7	Perform UPS Troubleshooting (Internal)								1a	
7.10.2.7.8	Perform UPS Bypass								2b	
7.10.3	**Preventative Maintenance**									
	Routines									
7.10.3.1	PMR Fundamentals								B	
7.10.3.2	PMR Package Seal Adjustment								2b	
7.10.3.3	PMR Enclosure Inspection and Cleaning								2b	

ATTACHMENT 7, RI 9S100 SPECIAL EQUIPMENT MAINTENANCE JETS

Task Number	1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
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				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
7.10.3.4	PMR System Instrumentation Unit Inspection, Verify Chiller Operation, Cooling Fans Inspection, and Cleaning								2b	
7.10.3.5	PMR Multi-Channel Analyzer								2b	
7.10.3.6	PMR Uninterruptible Power Supply and DC Power LEDs Inspection								2b	
7.10.3.7	PMR Calibrator Motor and Indicators								2b	
7.10.3.8	PMR Emergency Power Off Assembly Check and Cleaning								2b	
7.10.3.9	PMR Filter Paper Gearmotor and Indicators								2b	
7.10.3.10	PMR Ductwork								2b	
7.10.3.11	PMR Filter Media Restocking								2b	
7.10.3.12	PMR Flowmeter Cleaning and Inspection								2b	
7.10.3.13	PMR Detector Systems Inspection and Cleaning								2b	
7.10.3.14	PMR Sample Head and T- Bracket Cleaning and Inspection								2b	
7.10.3.15	PMR Internal UPS General Inspection and Servicing								2b	
7.10.3.16	PMR Internal UPS Battery Change								2b	
7.10.3.17	Conduct Operator Training - AGFU								-	
7.11	**ARCS SYSTEM (All objectives asterisked "*" will be taught knowledge only until training equipment is provided.)**									
7.11.1	**Gaseous Collector**									
	TR: TI 3D-ARCS-1, 3D-ARCS-4, 3D-ARCS-6, 3D-ARCS-8									
7.11.1.1	ARCS Theory and Analysis								B	
7.11.1.2	Relationship of Pressure, Volume, and Temperature								B	
7.11.1.3	Structural and Facility Power Requirements								B	
7.11.1.4	Operate Ground Based Collection Platform								2b*	
7.11.1.5	Perform Remote Monitoring and State of Health								2b*	
7.11.2	**Gaseous Collector Normal Maintenance**									
7.11.2.1	**Maintain Power Subsystem**									
7.11.2.1.1	Power Distribution System Fundamentals								B	
7.11.2.1.2	Perform Startup and Shutdown								2b*	
7.11.2.1.3	Perform General Operational Checkout								2b*	
7.11.2.1.4	Perform Emergency Shutdown								2b*	
7.11.2.1.5									2b*	

ATTACHMENT 7, RI 9S100 SPECIAL EQUIPMENT MAINTENANCE JETS

Task Number	1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided	
		Core, Cert^	Deployment *, SEI +, CBRN ~	A	B	C	D	E	A	B
				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
	Remove and Replace AC/DC Control Panel Components (DIN Rail and Direct Mount)									
7.11.2.1.6	Remove and Replace AC/DC Circuit Breakers								2b*	
7.11.2.1.7	Remove and Replace PWS-1, PWS-2, PWS-3, PWS-4, and Cryocooler Power Supply								2b*	
7.11.2.1.8	Remove and Replace E-Stop Button								-	
7.11.2.1.9	Remove and Replace Fuses and Fuse Terminal Blocks								b*	
7.11.2.1.10	Remove and Replace Multifunction Timer Relay (TR-1, TR-2, TR-3), and Relay Insert or Base (RLY-V510, RLY-SRC-CTL)								b*	
7.11.2.1.11	Remove and Replace Three or Four Wire Power Receptacles (CR-1, CR-2)								-	
7.11.2.1.12	Remove and Replace Single or Quad Box Receptacle								-	
7.11.2.2	**Maintain Archive Manifold**									
7.11.2.2.1	Archive Manifold Fundamentals								B	
7.11.2.2.2	Remove and Replace Archive Manifold Assembly								2b*	
7.11.2.2.3	Remove and Replace Vacuum Pump (MP-701)								2b*	
7.11.2.2.4	Remove and Replace Archive Bottle Connection								b*	
7.11.2.2.5	Remove and Replace Token Receptacle								-	
7.11.2.2.6	Remove and Replace Token Receptacle Indicator								-	
7.11.2.2.7	Remove and Replace Token Bus Host Adapter								-	
7.11.2.2.8	Remove and Replace Token Selection Board								-	
7.11.2.3	**Maintain Source Cylinder and Track**									
7.11.2.3.1	Source Cylinder and Track Fundamentals								B	
7.11.2.3.2	Remove and Replace Source Insertion Cylinder Assembly								-	
7.11.2.3.3	Remove and Replace Source Insertion Cylinder Limit Switch								-	
7.11.2.3.4	Remove and Replace Source Insertion Stepper Motor								-	
7.11.2.3.5	Remove and Replace Source Insertion Track Lead Nut								-	

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7.11.2.3.6	Remove and Replace Source Insertion Track								-	
7.11.2.3.7	Remove and Replace Source Movement Optical Switch Assembly								-	
7.11.2.4	**Maintain Sample Air System**									
7.11.2.4.1	Sample Air System Fundamentals								B	
7.11.2.4.2	Remove and Replace Burkert Valves and Clippard Valves								2b*	
7.11.2.4.3	Remove and Replace Bellows Stems								2b*	
7.11.2.4.4	Remove and Replace Clippard Assembly Accumulator								2b*	
7.11.2.4.5	Remove and Replace Compressor Capacitor								2b*	
7.11.2.4.6	Remove and Replace Compressor Hoses								2b*	
7.11.2.4.7	Remove and Replace Compressor Muffler								2b*	
7.11.2.4.8	Remove and Replace Compressor								2b*	
7.11.2.4.9	Remove and Replace Compressor Slide								-	
7.11.2.4.10	Remove and Replace Back Pressure Regulator (PCV-101)								2b*	
7.11.2.4.11	Remove and Replace Dryer Accumulator								b*	
7.11.2.4.12	Remove and Replace Dryer Column								b*	
7.11.2.4.13	Remove and Replace Dryer/Condensate Manual Ball Valve								b*	
7.11.2.4.14	Remove and Replace Heat Exchanger								b*	
7.11.2.4.15	Remove and Replace Water Separator (WS-101)								b*	
7.11.2.4.16	Remove and Replace Separation Column Fan Filter								b*	
7.11.2.4.17	Remove and Replace Separation Column Fan (FAN-401)								b*	
7.11.2.4.18	Remove and Replace Separation Column								b*	
7.11.2.5	**Maintain Control Subsystem**									
7.11.2.5.1	Control Systems Fundamentals								B	
7.11.2.5.2	Explain/Use Controls, Indicators, and System Software Commands in GUI								2b*	
7.11.2.5.3	Perform System Start-Up and Shutdown								2b*	
7.11.2.5.4	Explain/Identify - Normal Operation								2b*	
7.11.2.5.5	Remove and Replace Monitor and Keyboard								-	

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7.11.2.5.6	Remove and Replace Thermal Sensors (TE-101,102,103,104, 601, 804) and Thermocouple Connectors								2b*	
7.11.2.5.7	Remove and Replace Raid Enclosure and Hard Drive								2b*	
7.11.2.5.8	Remove and Replace OPTO Modules and Ethernet Brain								2b*	
7.11.2.5.9	Remove and Replace Ethernet Switch								2b*	
7.11.2.5.10	Remove and Replace MOXA-1 and MOXA-2								2b*	
7.11.2.5.11	Remove and Replace Cabinet Fans								2b*	
7.11.2.5.12	Remove and Replace Cryocooler Cabinet Fan (Except FAN-801-A)								2b*	
7.11.2.5.13	Remove and Replace EZ-Zone Fan Controllers								2b*	
7.11.2.5.14	Remove and Replace EZ-Zone Trap Heater Controllers								2b*	
7.11.2.6	**Maintain Detector Subsystem**									
7.11.2.6.1	Detector System Fundamentals								B	
7.11.2.6.2	Remove and Replace Detector Assembly								2b*	
7.11.2.6.3	Remove and Replace PXI Chassis								2b*	
7.11.2.6.4	Remove and Replace PXIe Controller								2b*	
7.11.2.6.5	Remove and Replace PIXIE-4 Module								2b*	
7.11.2.6.6	Remove and Replace High-Voltage (HV) Module								2b*	
7.11.2.6.7	Perform Nyx Configuration								2b*	
7.11.2.6.8	Perform QC Source Check								2b*	
7.11.2.6.9	Perform Three-Day Detector Background								2b*	
7.11.2.7	**Maintain Chiller Subsystem**									
7.11.2.7.1	Chiller System Fundamentals								B	
7.11.2.7.2	Remove and Replace Main Trap Assembly								-	
7.11.2.7.3	Remove and Replace Main Trap Cryocooler Controller								-	
7.11.2.7.4	Remove and Replace Main Trap Cryocooler								-	
7.11.2.7.5	Remove and Replace Vacuum Can								-	
7.11.2.7.6	Remove and Replace Vacuum Can Vent Valve Stem								-	
7.11.2.7.7	Remove and Replace Enrichment Trap Bimba Cylinder								-	

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				Trng Start	Trng Comp	Trainee Initials	Trainer Initials	Certifier Initials	Initial	Qual
7.11.2.7.8	Remove and Replace Enrichment Trap Assembly								-	
7.11.2.7.9	Remove and Replace Enrichment Trap Cryocooler Controller								-	
7.11.2.7.10	Remove and Replace Enrichment Trap Slide								-	
7.11.2.7.11	Remove and Replace Quantification Manifold								-	
7.11.2.7.12	Remove and Replace Turbopump Fan (FAN-302)								-	
7.11.2.7.13	Remove and Replace Turbopump (MP-302)								-	
7.11.2.7.14	Remove and Replace Recirculation Pump (MP-301)								-	
7.11.2.7.15	Remove and Replace Vacuum Pump MP-303								-	
7.11.2.7.16	Remove and Replace Vacuum Pump MP-401								-	
7.11.3	**Preventive Maintenance Routines**									
7.11.3.1	PMR Fundamentals								B	
7.11.3.2	Source Insertion Cable Check								2b*	
7.11.3.3	Voltage Adjustments								2b*	
7.11.3.4	PXI Chassis Filter Removal and Replacement								2b*	
7.11.3.5	Pleated Air Filter Replacement								2b*	
7.11.3.6	Source Insertion Lead Screw Lubrication								2b*	
7.11.3.7	Inlet Condensate Trap Drain								2b*	
7.11.3.13	Condensate Pan Inspection and Cleaning								2b*	
7.11.3.14	Water Separator (WS-101) Bowl Inspection and Cleaning								2b*	
7.11.3.15	Heat Exchanger Inspection and Cleaning								2b*	
7.11.3.16	Jorc Auto Drain (WC-101) Removal and Replacement								2b*	
7.11.3.17	Main Trap Sintered Filter Replacement								2b*	
7.11.3.18	Air Filter Element Replacement								2b*	
7.11.3.19	Dryer Sintered Filter Replacement								2b*	
7.11.3.20	Separation Column Sintered Filter Replacement								2b*	
7.11.3.21	Check and Pressure Relief Valve Replacement								2b*	
7.11.3.22	MKS-910 Replacement								2b*	

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7.11.3.23	Pressure Transducer Replacement								-	
7.11.3.24	Flow and Pressure Controller Replacement								2b*	
7.11.3.25	Dewpoint Sensor (AIT-201) Replacement								-	
7.11.3.26	Nitrogen Generator Service								2b*	
7.11.3.27	Nitrogen Generator Compressor Removal and Replacement								2b*	
7.11.3.28	Main Compressor Rebuild								2b*	
7.11.3.29	Diaphragm Pump Rebuild								2b*	
7.11.3.30	Recirculation Pump Sintered Filter (F-332) Replacement								2b*	
7.11.3.31	Turbopump (MP-302) Oil Change and Service								2b*	
7.11.3.32	Turbopump (MP-302) Replacement								2b*	
7.11.3.33	Power Supply Cleaning and Voltage Adjustment								2b*	
7.11.3.34	Crimp Terminal and Connector Inspection								1b*	
7.11.3.45	Conduct Operator Training - ARCS								-	

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