**VIRTUAL AIR TRAFFIC SIMULATION NETWORK**
UNITED STATES DIVISION

**ORDER**
ZAB ARTCC
7230.3C

Effective Date:
05 MAR 2024

**SUBJ:** Albuquerque ARTCC Training Syllabus

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This order prescribes the training procedures in use at ZAB ARTCC for use by personnel providing, or anticipating to provide, air traffic control services. Controllers are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment if they encounter situations not covered by it.

Ethan T. Martin
Training Administrator
ZAB ARTCC

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# Chapter 1. General

## Section 1. Introduction

### 1-1-1 PURPOSE OF THIS ORDER

This document sets forth the expectations, policies, and procedures for air traffic controller (ATC) training at the Albuquerque ARTCC (hereinafter "ZAB"). The guidelines and processes contained herein shall be followed as outlined by all members of the ZAB Training Department. The hours requirements for each level of training herein are recommendations and can be waived by the Training Administrator at their discretion. Timeframes in each section are suggestions and can be waived at the discretion of the Instructor.

### 1-1-2 RESPONSIBILITY

The training syllabus shall be maintained by the Training Administrator (hereinafter "TA"). Upon vacating the position, the outgoing TA shall provide the source file of this syllabus to the incoming TA, so that they may continue to modify this syllabus as needed.

Policies shall be maintained in accordance with established VATSIM Global Rating Policies. At no time shall any provision in this manual conflict with VATSIM or VATUSA policies.

### 1-1-3 DISTRIBUTION

This order is distributed to all members of ZAB ARTCC, including all home/visiting controllers, staff, and new members through the ZAB website.

### 1-1-4 WHAT THIS ORDER CANCELS

This order cancels ZAB Order 7230.3B, effective 2022-09-04.

### 1-1-5 EXPLANATION OF CHANGE

28 Aug 2024 - Added language to further implement vStrip requirements.

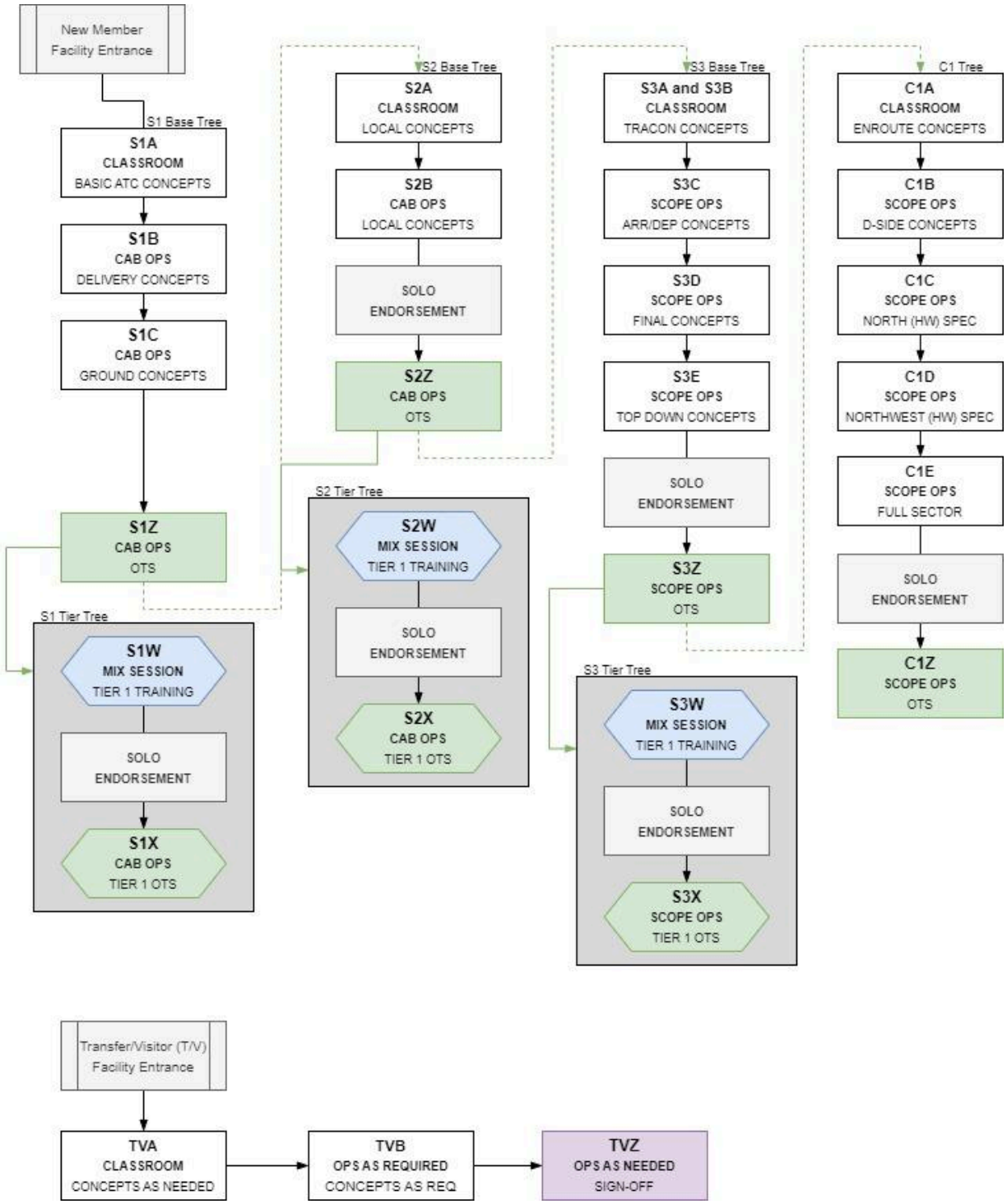
### 1-1-6 EFFECTIVE DATE

This document shall become effective March 5th, 2024. Last amended August 28th, 2024.

# Chapter 2. Training Program

## Section 1. Overview

### 2-1-1 TRAINING PROGRAM FLOW



### 2-1-2 GCAP COMPLIANCE

ZAB ARTCC training flow and all lessons contained within are compliant with VATSIM GCAP policy. The ZAB ARTCC training program is designed to be completed with no endorsements given from instructors, unless voluntarily sought by the trainee, in compliance with GCAP 8.5(e). Several lessons present an option to be performed at one of two facilities. This is with intent to provide the student with a course that requires no endorsement for Tier 2 facilities.

### 2-1-3 LESSON REPETITION

Lessons contained herein must be repeated until the prescribed completion standards are met. This is not to the detriment of the student, conversely this ensures a continuity of knowledge (presence of essential 'building-blocks') prior to beginning the next (typically more rigorous) lesson. Instructors and mentors have complete discretion to repeat any lesson that has already been 'completed.'

### 2-1-4 TIME-ON-POSITION REQUIREMENTS

Time requirements listed in prerequisites herein may be waived by the Training Administrator. Such requests must be made in writing, and are usually permitted pending review of activity.

### 2-1-5 TIER 1 ENDORSEMENTS

Tier 1 Endorsements are issued for PHX/P50 positions IAW GCAP 7.5. These endorsements are sought on a voluntary basis, through the prescribed training flow above.

### 2-1-6 TIER 2 ENDORSEMENTS

Tier 2 Endorsements are issued for ABQ, FLG, SAF, and LUF positions IAW GCAP 7.5. These endorsements are sought on a voluntary basis, and are awarded through the administration of a written exam that covers those areas of interest that warranted the assignment of Tier 2 to that facility.

### 2-1-7 SOLO ENDORSEMENTS

Solo endorsements, though not a requirement of the training program, are highly encouraged to afford a student an opportunity to make mistakes and self-critique in the network environment, after demonstrating that they have sufficient knowledge to operate on a specific position, IAW ZAB Order 7230.4C §4-2-1.

# Section 2. Developing Controller

## 2-2-1 (S1A) BASIC ATC AND NAS CONCEPTS

***PURPOSE***

To introduce the student to the VATSIM environment and provide baseline resources and aeronautical knowledge to be successful as a Developing Controller.

***TIME*** 1.5 hrs ***SET*** CL

***PREREQUISITES***

1. Active VATSIM account
2. Assigned to ZAB ARTCC
3. Successful completion of Academy course

***REFERENCES***

[1] VATSIM Policy Documents
[6] ZAB Controller Policy Manual
[6] ZAB Training Operations Manual
[8] ZAB Flight Progress Strips

[2] AIM (3-2 Airspace)
[3] AIM (1 Air Navigation)

[4] 7110.65AA (4-2 Clearances)
[5] 7110.65AA (4-3 Departures)

[7] CRC Documentation

***COMPLETION STANDARDS***

The student will have a full and complete setup including CRC, AFV, and vATIS in preparation for *S1B*.

The student will have a working understanding of the NAS and various control positions.

***KNOWLEDGE and CONCEPTS***

GCAP A.2(a) and A.2(b) [PP]

I. VATSIM Specifics
   - A. VATSIM GCAP and COC [1]
   - B. Global, Division, and ARTCC structure
   - C. Control positions and their associated responsibilities

II. National Airspace System (NAS)
   - A. Classes of airspace [2]
     1. General dimensions
   - B. IFR and VFR operations
     1. Instrument Meteorological Conditions (IMC)
     2. Visual Meteorological Conditions (VMC)
   - C. Weather reporting
     1. Decoding METARs and TAFs
     2. Airport ‘flow’ and determination

III. Navigating the NAS [3]
   - A. Airport types
     1. Controlled and uncontrolled
     2. Review an airport diagram
        a) Movement and non-movement areas
   - B. Type of navigational aids
     1. Navigation and equipment suffixes
     2. RNAV and non-RNAV
   - C. Airways and routes
     1. Victor airways, J, Q, and T routes.
     2. Preferred routes (FAA and LOA)
   - D. Instrument procedures
     1. SIDs, STARs, and ODPs

IV. Clearance Delivery
   - A. CRAFT and associated concepts [4]
     1. Define all parts of a clearance
        a) Define “clearance limit”
        b) Introduce vStrips, review 7230.6A
     2. Altitude assignments (E ODD/W EVEN)
        a) Lowest usable FL and phraseology
        b) Equipment suffixes and RVSM
     3. ‘Climb via SID’ phraseology[5]
        a) SID chart review and interpretation

V. CRC, AFV, and vATIS Setup [7]

VI. Summation of Training Continuation
   - A. ZAB training policy and process [6]

***SESSION COMPLETE***

## 2-2-2 (S1B) DELIVERY CONCEPTS

***PURPOSE***

To introduce the student to practical application of knowledge pertaining to clearance delivery operations.

***TIME*** 2 hrs ***SET*** SB, KPRC or KABQ

***PREREQUISITES***

1. Completion standards of S1A met or exceeded

***REFERENCES***

[1] 7110.65AA (4-2 Clearances)

[2] vStrips Documentation
[3] vTDLS Documentation

[4] AIM (4-4-1 ATC Clearances)

***KNOWLEDGE and CONCEPTS***
GCAP A.2(b) and A.2(d)

I. Clearance Delivery [1 4]
   A. Define all parts of a clearance, utilizing vStrips
      1. Recognize altimetry issues
      2. Recognize equipment suffix applicability
   B. Proper phraseology for issuing a clearance
   C. Editing a route and/or flight plan
   D. Proper phraseology for issuing a reroute
II. VFR Aircraft Handling
   A. Airspace differences (B, C, and D)
   B. Creating flight plan information
III. Routing Preference
   A. Letter of Agreement (LOA) applicability
   B. FAA preferred routing
IV. Controller Coordination
   A. Proper phraseology for controller coordination including APREQs, non-standard runway usage, etc.
   B. Proper phraseology and technique for position relief briefings
V. vNAS Integration
   A. vSTRIPS and vTDLS [2 3]
      1. vTDLS introduction only, usage occurs after OTS

***APPLICATION of SKILLS***

I. Clearance Delivery
   A. Determine airport flow and issue appropriate ATIS
   B. Issue standardized clearances correctly
      1. Recognize errors in flight plans when present
      2. Applies all parts of a clearance[2]
      3. Applies ‘climb via’ phraseology appropriately
   C. Issue VFR aircraft clearances appropriately
   D. Edit flight plans and issue reroutes to pilots
      1. Recognize and apply LOA or preferred routing when applicable to the filed flight plan
   E. vSTRIP usage required
      1. Issue clearances from, and modify, the strip
II. Controller Coordination
   A. Coordinate APREQs for non-standard operations appropriately
   B. Provide an adequate and standard position relief briefing

***COMPLETION STANDARDS***

The student demonstrates full understanding of all knowledge items and demonstrates mastery of those skills required herein.

***SESSION COMPLETE***

## 2-2-3 (S1C) GROUND CONCEPTS

***PURPOSE***

To introduce the student to practical application of knowledge pertaining to ground operations, and refine clearance delivery concepts.

***TIME*** 2 hrs ***SET*** SB, KPRC or KABQ

***PREREQUISITES***

1. Completion standards of S1B met or exceeded

***REFERENCES***

[1] 7110.65AA (3-7 Ground)
[2] 7110.65AA (2-1 General)
[3] 7110.65AA (3-11 Helicopters)

[4] ZAB Albuquerque SOP

***COMPLETION STANDARDS***

The student demonstrates full understanding of all knowledge items and demonstrates mastery of those skills required herein.

***KNOWLEDGE and CONCEPTS***

GCAP A.2(c) and A.2(d)

I. Ground Operations [1]
   A. 'Positive Control' concept [2]
      1. Issuing complete instructions unconditionally
      2. Thinking and planning ahead
   B. Movement v. non-movement areas, and the ground controllers responsibility to aircraft
      1. Local jurisdiction of taxiways
      2. Push clearance applicability
   C. Tools for traffic management
      1. Hold position and give-way instructions
      2. Behind and follow instructions
   D. Helicopter operations
      1. Air taxi v. hover taxi
      2. Issuing movement restrictions
   E. Aircraft transfer procedures to local
   F. Ground SOP and LOA applicability [3]

II. Controller Coordination
   A. Proper phraseology for controller coordination regarding runway crossings, including blanket crossing allowances

***APPLICATION of SKILLS***

I. Clearance Delivery
   A. Issue IFR and VFR clearances timely and appropriately
      1. Controller utilizes vStrips, including crossing proc.
   B. Meet or exceed S1B standards in 'top-down' operations

II. Ground Operations
   A. Demonstrate application of Positive Control
   B. Issue ground movement instructions efficiently and appropriately to departure and arrival aircraft
      1. Progressive taxi phraseology
      2. Intersection departure phraseology
   C. Issue runway crossing instructions appropriately
   D. Issue ground movement instructions efficiently and appropriately to rotorcraft
   E. Ensure aircraft have adequate weather information

III. Controller Coordination
   A. Coordinate APREQs for runway crossings, including 'crossings complete' coordination.
   B. Provide an adequate and standard position relief briefing

***SESSION COMPLETE***

## 2-2-4 (S1Z) DEVELOPING CONTROLLER OTS EVALUATION

The student shall meet all competencies listed herein for issuance of the VATSIM S1 rating. A combined eighty (80) percent mastery in knowledge and skills categories is required.

***PURPOSE***

To evaluate the student's practical application of knowledge and skills for provision of air traffic services in a Developing Controller position.

***SETTING***

SB, KPRC or KABQ

***KNOWLEDGE and SKILLS***

GCAP, USADP-002B, and FAAO 7110.65AA as notated in X-1-1 herein.

**I. General Competencies**

A. Understanding of DEL and GND role in the NAS
   1. Adequate application of Positive Control

B. Working knowledge of National Airspace System components
   1. Airspace classes and entry requirements
      a) Understands Mode C usage and requirement
      b) Understands Special Use Airspace (SUA)
   2. Weather reporting
      a) Adequately decodes a METAR and TAF to determine airport flow IAW local SOPs
      b) Adequately determines lowest usable FL

C. Uses prescribed phraseology with allowable local variances
   1. Ensures operational requests are acknowledged
   2. Transfers communications appropriately
   3. Provides an adequate position relief briefing

D. Understanding of local SOPs and LOAs

E. Understanding of SID and ODP types
   1. Identifies different types of NAVAIDS
   2. Understands common equipment suffix restrictions

F. Understanding of the flight strip system, IAW 7230.6A

G. Understanding of heavy/super specialities

**II. Clearance Delivery Competencies**

A. Explains all parts of a flight plan
   1. Issues IFR clearance using prescribed phraseology
      a) Appropriate initial altitude assignment or "climb-via" phraseology (as req. by SOP)
      b) Appropriate cruise altitude assignment based upon direction of flight
   2. Issues VFR clearance using prescribed phraseology
      a) Understands the services provided to an aircraft participating in Flight Following

B. Defines RVSM, its associated rules, and applicable airspace
   1. Understands coordination procedures required for non-RVSM capable aircraft

C. Understands, and is able to issue, a reroute when applicable

D. Ensures readback is correct with prescribed phraseology

**III. Ground Control Competencies**

A. Distinguishes between movement and non-movement areas

B. Issues ground movement instructions efficiently and correctly

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1. Ensures aircraft have proper weather information
2. Issues taxi instructions to the following positions using prescribed phraseology:
    a) Active runway for departure
    b) Active runway for intersection departure
    c) Gate or ramp area(s)
3. Issues, or understands, progressive taxi instructions

C. Issues, or understands, ground movement instructions for rotorcraft
    1. Explains the difference between hover and air taxi

D. Issues, or understands, runway crossing concepts including proper phraseology
    1. Issues hold short instructions
    2. Coordinates runway crossings
    3. Coordinates non-standard runway usage

E. Sequences ground traffic appropriately
    1. Utilizes “follow,” “behind,” or “give-way” phraseology to maintain positive control

***COMPLETION STANDARDS***

The student demonstrates a combined eighty (80) percent mastery in knowledge and skills categories herein.

***EVALUATION COMPLETE***

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# Section 3. Aerodrome Controller

## 2-3-1 (S2A) LOCAL CONCEPTS

***PURPOSE***

To introduce local control concepts to the student prior to working Class C/Class D traffic in a simulated or live environment.

***TIME*** 1.5 hrs ***SET*** CL

***PREREQUISITES***

1. Completion of S1Z and issuance of S1 rating.
2. At least 20 hours connected in a ZAB S1 position
3. Successful completion of Academy (S2) course

***REFERENCES***

[1] AIM (3-2-4 Class C Airspace)
[2] AIM (3-2-5 Class D Airspace)
[3] AIM (4-3-3 Traffic Patterns)

[4] 7110.65AA (3-10 Pattern Entry)
[5] 7110.65AA (3-8 Spacing)
[6] 7110.65AA (5-3-2 Rolling)
[7] 7110.65AA (4-3-4 Release)
[8] 7110.65AA (4-8-9 Missed)
[10] 7110.65AA (3-9-10 Takeoff)
[11] 7110.65AA (3-7-2 Crossing)
[12] 7110.65AA (3-9-4 LUAW)
[13] 7110.118B (LAHSO Ops)
[14] 7110.65AA (3-10-3 SRS)
[15] 7110.65AA (3-9-6 Wake)
[16] 7110.65AA (3-10-12 Overhead)
[17] 7110.65AA (3-11 Helicopters)

[9] ZAB Order 7110.1A (ABQ SOP)

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***KNOWLEDGE and CONCEPTS***

GCAP A.3(a) and A.3(b) [PP]

I. Positive Control Concepts
   A. Anticipating aircraft positioning
   B. Anticipating speed and separation

II. Airspace Review
   A. KPRC/KABQ airspace and local controller jurisdiction
   B. Entry requirements for each airspace type [1] [2]
      1. "Remain clear" phraseology

III. VFR Aircraft Handling
   A. Class C and Class D VFR outbound clearance items
   B. Traffic pattern application
      1. Define each leg of the traffic pattern [3]
      2. Traffic pattern departure and entry instructions [4]
      3. Spacing management techniques [5]
         a) Traffic point out phraseology
         b) "Follow," and "visual separation"
         c) S-turns, 360s, visual holding
         d) Extending pattern legs
   C. Airspace transitions
   D. Appropriate vStrip markings in the Local position

IV. IFR Aircraft Handling
   A. Rolling notifications to overlying sector [6]
      1. Verbal rolling notification phraseology
      2. Written alias command
         a) .RC **Sector ID** **Runway** **Free Text**
   B. IFR Release requests to overlying sector [7]
      1. Verbal IFR release phraseology
      2. Written alias command
         a) .RR **Sector ID** **Departure Info**
      3. Auto-release coordination
   C. Handoffs
      1. When to handoff radio communications
      2. How to handoff a STARs track on go-around
   D. Missed approach procedures
      1. Importance of published missed approach procedure
         a) "Fly published missed" phraseology [8]
      2. SOP missed approach procedures [9]
      3. Coordination of aircraft on missed approach
   E. Appropriate vStrip markings in the Local position

V. Takeoffs and Landings
   A. Issuing takeoff/landing clearances, and what they mean [10]

1. Types of landing clearances
2. Reporting wind
3. Option clearance and phraseology [5]

B. Runway crossing coordination and phraseology [11]
C. LUAW/LAHSO phraseology, applicability, and restrictions [12] [13]
D. Same runway separation [14]
E. Wake turbulence categories and separation requirements [15]

VI. Military Operations
A. "Check wheels down" (USA/USN)
B. Overhead-break maneuver [16]
C. Simulated engine flameout [16]

VII. Helicopter Operations [17]
A. Departure and arrival from/to an active runway
B. Departure and arrival from/to an movement area
C. Departure and arrival from/to a non-movement area

***COMPLETION STANDARDS***

The student will have a complete understanding of those knowledge items required to be successful as an aerodrome controller.

***SESSION COMPLETE***

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## 2-3-2 (S2B) LOCAL CONCEPTS

***PURPOSE***

To introduce the student to practical application of knowledge pertaining to ground operations, and refine clearance delivery concepts.

***TIME*** 2 hrs ***SET*** SB or LN, KPRC or KABQ

***PREREQUISITES***

1. Completion standards of S2A met or exceeded

***REFERENCES***

[1] AIM (4-3-3 Traffic Patterns)

[2] 7110.65AA (3-10 Pattern Entry)
[3] 7110.65AA (3-8 Spacing)
[4] 7110.65AA (3-9-10 Takeoff)
[5] 7110.65AA (3-9-4 LUAW)
[6] 7110.118B (LAHSO Ops)
[7] 7110.65AA (3-10-3 SRS)
[8] 7110.65AA (3-9-6 Wake)

***KNOWLEDGE and CONCEPTS***

GCAP A.3(a) and A.3(b)

I. Traffic Pattern Review
   A. Define each leg of the traffic pattern [1]
   B. Traffic pattern departure and entry instructions [2]
   C. Spacing management techniques [3]
      1. Traffic point out phraseology
      2. "Follow," and "visual separation"
      3. Speed, S-turns, 360s, visual holding
      4. Extending pattern legs

II. Takeoffs and Landings Review
   A. Issuing takeoff/landing clearances [4]
      1. Types of landing clearances
      2. Option clearance and phraseology [3]
   B. LUAW/LAHSO phraseology, applicability, and restrictions [5] [6]
   C. Same runway separation [7]
   D. Wake turbulence categories and separation requirements [8]

III. Missed Approach Instruction Review
   A. KFLG/KABQ SOP particulars
   B. "Fly published missed" phraseology

***APPLICATION of SKILLS***

I. Local Control
   A. Takeoffs and landings application
      1. Issues appropriate takeoff and landing instructions
         a) Includes wind when required
         b) Includes pattern instructions when required
         c) Ensures adequate aircraft separation
         d) Applies wake turbulence separation
      2. Issues missed approach instructions
   B. Traffic pattern management
      1. Issues appropriate instructions to arriving, departing, and operating IFR and VFR aircraft
      2. Maintains appropriate spacing
   C. Controller coordination procedures
      1. Coordinates missed approaches as required
      2. Coordinates changes in runway configuration
      3. Provides adequate position relief briefing
      4. vStrip marking procedures

***COMPLETION STANDARDS***

The student demonstrates full understanding of all knowledge items and demonstrates mastery of those skills required herein.

***SESSION COMPLETE***

## 2-3-3 (S2Z) AERODROME CONTROLLER OTS EVALUATION

The student shall meet all competencies listed herein for issuance of the VATSIM S2 rating. A combined eighty (80) percent mastery in knowledge and skills categories is required.

***PURPOSE***

To evaluate the student's practical application of knowledge and skills for provision of air traffic services in an Aerodrome Controller position.

***SETTING***

SB or LN, KPRC or KABQ

***TIME-ON-POSITION REQ***

At least 20 hours connected in a ZAB S1 position.

At least 10 hours connected in a ZAB S2 position under a solo endorsement.

***COMPLETION STANDARDS***

The student demonstrates a combined eighty (80) percent mastery in knowledge and skills categories herein.

***KNOWLEDGE and SKILLS***

GCAP, USADP-002B, and FAAO 7110.65AA as notated in X-1-2 herein.

**I. General Competencies**

- A. Demonstrates mastery of all S1 concepts
- B. Understanding of the local controller role in the NAS
  1. Adequate application of Positive Control
- C. Uses prescribed phraseology with allowable local variances
  1. Transfers communications appropriately

**II. Local Competencies**

- A. Demonstrates mastery of all S1 skills while providing 'top-down' air traffic services
- B. VFR Aircraft Handling
  1. Applies appropriate traffic pattern management
     a) Identifies all segments of the traffic pattern
     b) Issues appropriate entry/departure instructions
  2. Applies sequencing techniques as required to maintain separation between aircraft in the airspace
     a) Understands "visual separation" limitations
  3. Ensures VFR +FF aircraft are radar identified
  4. Appropriately handles aircraft transitioning the airspace
- C. Takeoffs and Landings
  1. Issues takeoff clearances appropriately
     a) Issues an intersection departure appropriately
     b) Issues appropriate departure instructions
     c) Cancels a takeoff clearance when appropriate
  2. Issues landing clearances appropriately
     a) Issues a go-around timely when appropriate
        (1) Provides adequate missed approach instructions if required
     b) Understands LAHSO and its restrictions
     c) Understands circle-to-land procedures
     d) Defines the overhead maneuver
  3. Applies same runway separation appropriately
  4. Applies wake turbulence separation appropriately
  5. Issues and understands LUAW and its restrictions
- D. Controller Coordination
  1. Coordinates with TRACON as required; rolling calls
  2. Provides an adequate position relief briefing

***EVALUATION COMPLETE***

# Section 4. Terminal Controller

## 2-4-1 (S3A) BASIC TRACON CONCEPTS

***PURPOSE***

To introduce radar and non-radar control concepts to the student prior to working Class C/Class D traffic in a simulated or live environment.

***TIME*** 1.5 hrs ***SET*** CL

***PREREQUISITES***

1. Completion of S2Z and issuance of S2 rating.
2. At least 30 hours connected in a ZAB S2 position
3. Successful completion of Academy (S3) course

***REFERENCES***

[1] 7110.65AA (3-1-13 Comms (D))
[2] 7110.65AA (7-8-4 Comms (C))
[5] 7110.65AA (5-6-3 Vectors↓MVA)
[6] 7110.65AA (4-5-7 Descend Via)
[8] 7110.65AA (4-8-1 Straight-in)
[9] 7110.65AA (5-3 Radar ID)
[10] 7110.65AA (5-2-15 Alt Verif)
[11] 7110.65AA (5-4-5 Handoff)
[12] 7110.65AA (2-1-15 Control Xfer)
[13] 7110.65AA (App A Relief)
[14] 7110.65AA (2-1-6 Safety Alert)
[15] 7110.65AA (5-5-4 Sep Minima)
[16] 7110.65AA (7-8-3 IFR-VFR Sep)

[3] U90 TRACON SOP
[4] ABQ TRACON SOP

[7] AIM (5-4 Arrival Procedures)

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***KNOWLEDGE and CONCEPTS***

GCAP A.4(a), A.4(b), and A.4(c) [PP]

I. Positive Control Concepts
   A. Anticipating aircraft positioning to maintaining separation
   B. Intermediate airspace scanning techniques

II. Basic Radar Theory
   A. Review airspace classes and entry requirements
      1. Review "remain clear of…" phraseology [1] [2]
      2. Define "two-way radio communications"
   B. KTUS/KABQ airspace layouts and procedure review
      1. U90/ABQ lateral and vertical airspace boundary [3] [4]
      2. Review minimum altitudes for IFR aircraft
         a) Minimum Enroute Altitude (MEA)
         b) Minimum Obstacle Clearance Altitude (MOCA)
         c) Minimum Vectoring Altitude (MVA)
         d) Minimum IFR Altitude (MIA)
      3. Review instrument departure procedures
         a) Standard Instrument Departures (SIDs)
         b) Obstacle Departure Procedures (ODPs)
         c) Vectoring below MVA procedures [5]
            (1) Untowered field departures
      4. Review instrument arrival procedures
         a) Standard Terminal Arrival Routes (STARs)[7]
            (1) RNAV v. Non-RNAV
            (2) "Descend via…" phraseology [6]
         b) Instrument Approach Procedures (IAPs)
            (1) Precision approach procedures
            (2) Non-precision approach procedures
               (a) Lack of vertical guidance
      5. Reading instrument approach procedures [7]
         a) Initial Approach Fix (IAF)
         b) Intermediate fix (IF)
         c) Final Approach Fix (FAF)
            (1) Procedure turns
               (a) "Straight-in" phraseology [8]
            (2) Holding-in-lieu of
      6. KTUS/KABQ SOP review, as applicable
      7. KTUS/KABQ LOA review, as applicable
   C. Radar identification methodology [9]
      1. Primary target methods
      2. Secondary target methods

3. Verification of Mode C altitude [10]

D. Transfer of radar identification versus transfer of control discussion [11] [12]
   1. Coordinating early transfer of control

E. Radar separation requirements in Class C airspace [15]
   1. VFR to VFR target separation
   2. VFR to IFR target separation [16]
   3. IFR to IFR target separation
   4. Terminal wake turbulence separation

F. Merging target procedures and safety alerts [14]
   1. Traffic point-outs
      a) Visual separation application
   2. Traffic alert phraseology
   3. Low-altitude alert phraseology

G. Controller coordination procedures
   1. Point-out procedures
      a) Intrafacility v. interfacility
   2. Approval requests (APREQ)
   3. Handoff procedures
      a) Automatic (STARS/ERAM)
      b) Manual procedures and phraseology
   4. vStrip marking procedures, IAW 7230.6A
   5. Standard Position Relief Briefing [13]

***COMPLETION STANDARDS***
The student will have a complete understanding of those knowledge items required to be successful as a terminal controller.

***SESSION COMPLETE***

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## 2-4-2 (S3B) ADVANCED TRACON CONCEPTS

### *PURPOSE*

To introduce radar and non-radar control concepts to the student prior to working Class C/Class D traffic in a simulated or live environment.

***TIME*** 1.5 hrs ***SET*** CL

### *PREREQUISITES*

1. Completion standards of S3A met or exceeded

### *REFERENCES*

[1] 7110.65AA (7-2 Visual Sep)
[2] 7110.65AA (5-6-2 Vector Method)
[3] 7110.65AA (5-7 Speed Adjust)
[4] 7110.65AA (5-9-4 PTAC)
[5] 7110.65AA (4-8-11 Practice IAP)
[6] 7110.65AA (7-4 Visual Approach)
[7] 7110.65AA (4-6 Holding)
[8] 7110.65AA (4-8-1(f) OIOO)
[9] 7110.65AA (4-3-4 IFR Release)
[10] 7110.65AA (7-6 VFR Services)

[11] Stack Exchange (OIOO)
*While not an official resource, the second answer on this post does an excellent job explaining one-in one-out procedures. Reference 8.*

### *KNOWLEDGE and CONCEPTS*

GCAP A.4(a), A.4(b), and A.4(c) [PP]

I. Advanced Radar Theory
  A. Sequencing techniques and methodology
    1. Visual separation restrictions [1]
      a) Must have other approved before and after
    2. Issuing radar vectors [2]
      a) Direction and heading
        (1) "Fly heading" phraseology
      b) Direction and number of degrees
      c) No-gyro vector phraseology [2]
      d) "Depart *fix* heading…" phraseology [2]
    3. Issuing speed restrictions [3]
      a) Compression on final approach
      b) 210/190/170 methodology
  B. Approach clearance phraseology (PTAC) [4]
    1. Position (if required)
    2. Turn (if required)
    3. Altitude (if required)
      a) "Maintain *alt* until established", v.
      b) "Cross *fix* at *alt*" phraseology
    4. Clearance
      a) Practice approach specialities [5]
  C. Vectoring to Final Approach Course (FAC) [4] *(5-9-1)*
    1. Vectoring may not always be required
      a) Feeder-routes, STARs, etc.
    2. Define "approach gate"
      a) Intercept angle requirements
    3. Traffic-pattern-like vectoring benefits
  D. Visual approach methodologies [6]
    1. Weather condition required to assign
    2. Contact approaches
    3. Typically vector to FAF
  E. Holding procedures and methodology [7]
    1. Standard holding pattern (direction and time)
    2. Published holds
    3. Unpublished holding phraseology
  F. Pop-up IFR clearance phraseology
  G. Uncontrolled field operations
    1. "One-in one-out" rule [8] [11]
    2. Issuing IFR releases [9]
      a) Clearance void time applicability
        (1) .RFD alias assist
    3. Handling IFR arrivals to uncontrolled fields
      a) Approach requests and assignment

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| | |
|---|---|
| ***COMPLETION STANDARDS***<br>The student will have a complete understanding of those knowledge items required to be successful as a terminal controller. | b) Visual approaches<br>c) Traffic advisories<br>H. VFR flight following [10]<br>1. Prioritizing IFR traffic, measuring workload<br>2. Providing traffic advisories<br>3. Terminating radar services |
| ***SESSION COMPLETE*** | |

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## 2-4-3 (S3C) ARRIVAL/DEPARTURE CONCEPTS

***PURPOSE***

To introduce the student to practical application of knowledge pertaining to terminal controller operations. Specifically, transitioning aircraft from the enroute environment to the terminal environment.

***TIME*** 2 hrs ***SET*** SB or LN, KTUS or KABQ

***PREREQUISITES***

1. Completion standards of S3B met or exceeded

***KNOWLEDGE and CONCEPTS***

GCAP A.4(a), A.4(b) and A.4(c)

I. General Concept Review
   - A. Positive control concepts and scan
   - B. U90/ABQ lateral and vertical airspace boundary
   - C. Radar identification methodology
     1. Secondary target methods
   - D. Separation requirements in Class C airspace
     1. IFR to IFR target separation

II. Radar Theory Review
   - A. Merging target procedures and safety alerts
     1. Traffic point-outs
        a) Application of visual separation
     2. Traffic alert phraseology
     3. Low-altitude alert phraseology
   - B. Controller coordination procedures
     1. Approval requests (APREQ)
     2. Handoff procedures
     3. Position relief briefing
   - C. Visual approach methodologies
     1. Vectoring techniques and approach clearance

***APPLICATION of SKILLS***

I. General Concepts
   - A. Demonstrates application of positive control and is able to manage and prioritize tasks appropriately
   - B. Issues all instructions using prescribed phraseology
   - C. Issues traffic and terrain/obstruction alerts
   - D. Issues traffic point-outs

II. Departure Concepts
   - A. Adequately handles departing IFR and VFR aircraft
     1. Assigns headings on course as appropriate
     2. Assigns altitudes on departure as appropriate
     3. Issues VFR instructions when required
   - B. Demonstrates a familiarity with local SIDs/ODPs

III. Arrival Concepts
   - A. Adequately handles arriving IFR and VFR aircraft
     1. Assigns speeds and/or altitudes as appropriate to maintain the required separation minima
        a) In the absence of enroute, utilizes “descend via” phraseology when required
     2. Issues radar vectors appropriately
        a) When vectoring off of an arrival procedure,

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issues altitudes as appropriate
b) Utilizing airspace to the fullest extent is encouraged, when required
3. Ensures altitude assignments comply with MIAs

IV. Approach Concepts
A. Issues radar vectors appropriately
B. Issues visual approach clearances
1. Ensures aircraft reports field in sight

V. Controller Coordination
A. Transfers radar identification to local controller as required by local SOP/LOA
B. Coordinates go-arounds/missed approaches as required
C. Coordinates non-standard operations appropriately
D. Coordinates APREQs with enroute controller as required

***COMPLETION STANDARDS***

The student demonstrates full understanding of all knowledge items and demonstrates mastery of those skills required herein.

***SESSION COMPLETE***

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## 2-4-4 (S3D) FINAL CONCEPTS

***PURPOSE***

To introduce the student to practical application of knowledge pertaining to terminal controller operations. Specifically, managing aircraft onto instrument approach procedures.

***TIME*** 2 hrs ***SET*** SB or LN, KTUS or KABQ

***PREREQUISITES***

1. Completion standards of S3C met or exceeded

***KNOWLEDGE and CONCEPTS***

GCAP A.4(a), A.4(b) and A.4(c)

I. General Concept Review
   - A. Positive control concepts and scan
   - B. Separation requirements in Class C airspace
     1. Simultaneous approaches to parallel runways
     2. IFR to IFR target separation

II. Radar Theory Review
   - A. Instrument Approach Procedures (IAPs)
     1. Precision approach procedures
     2. Non-precision approach procedures
        a) Lack of vertical guidance
   - B. Approach clearance phraseology (PTAC)
     1. Position (if required)
     2. Turn (if required)
     3. Altitude (if required)
        a) "Maintain *alt* until established", v.
        b) "Cross *fix* at *alt*" phraseology
     4. Clearance
   - C. Vectoring to Final Approach Course (FAC)
     1. Define "approach gate"
        a) Intercept angle requirements
     2. Traffic-pattern-like vectoring benefits
   - D. Holding procedures and methodology
     1. Unpublished holding phraseology

***APPLICATION of SKILLS***

I. General Concepts
   - A. Demonstrates application of positive control and is able to manage and prioritize tasks appropriately
   - B. Issues all instructions using prescribed phraseology

II. Arrival Concepts
   - A. Adequately handles arriving IFR and VFR aircraft
     1. Issues speeds and/or altitude as required to maintain separation minima
     2. Issues radar vectors appropriately
   - B. Ensures assignments comply with MIAs

III. Approach Concepts
   - A. Issues radar vectors appropriately IAW final approach course intercept angle criteria
   - B. Issues instrument approach clearances appropriately
     1. Complies with PTAC phraseology
        a) Utilizes "maintain until" and "cross *fix*"

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|---|---|
| ***COMPLETION STANDARDS***<br><br>The student demonstrates full understanding of all knowledge items and demonstrates mastery of those skills required herein. | altitudes as required<br>2. Demonstrates understanding of final spacing techniques to maintain separation as required<br>3. Understands differences in precision versus non-precision approach clearances<br>C. Handles aircraft on missed approach appropriately<br>IV. Controller Coordination<br>A. Transfers radar identification to local controller as required by local SOP/LOA<br>B. Coordinates go-arounds/missed approaches as required<br>C. Coordinates non-standard operations appropriately<br>D. Coordinates APREQs with enroute controller as required |
| ***SESSION COMPLETE*** | |

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## 2-4-5 (S3E) TOP-DOWN CONCEPTS

***PURPOSE***

To introduce the student to practical application of knowledge pertaining to terminal controller operations, specifically working IFR aircraft into and out of uncontrolled fields.

***TIME*** 2 hrs ***SET*** SB or LN, KTUS or KABQ

***PREREQUISITES***

1. Completion standards of S3D met or exceeded

***KNOWLEDGE and CONCEPTS***

GCAP A.4(a), A.4(b) and A.4(c)

I. General Concept Review
   - A. Positive control concepts and scan
   - B. Separation requirements in Class C airspace
     1. Simultaneous approaches to parallel runways
     2. IFR to IFR target separation

II. Radar Theory Review
   - A. Obstacle Departure Procedures (ODPs)
   - B. Vectoring below MVA procedures
     1. Untowered field departures
   - C. Approach clearance phraseology (PTAC)
     1. Clearance
        a) Practice approach specialities
   - D. Pop-up IFR clearance phraseology
   - E. Uncontrolled field operations
     1. "One-in one-out" rule
     2. Issuing IFR releases
     3. Handling IFR arrivals to uncontrolled fields
        a) Approach requests and assignment
   - F. VFR flight following
     1. Providing traffic advisories
     2. Terminating radar services

***APPLICATION of SKILLS***

I. General Concepts
   - A. Demonstrates application of positive control and is able to manage and prioritize tasks appropriately
   - B. Issues all instructions using prescribed phraseology
   - C. Issues pop-up IFR clearance

II. Departure Concepts
   - A. Issues IFR releases to aircraft at uncontrolled fields
     1. Releases aircraft IAW "one-in one-out" as required
   - B. Applies radar identification methodology as appropriate
   - C. Applies "vectoring below MVA" methodology as appropriate
     1. "...able to maintain own terrain and obstruction clearance" phraseology and usage

III. Arrival and Approach Concepts
   - A. Adequately handles IFR and VFR aircraft
     1. Assigns speeds and/or altitudes as appropriate to maintain the required separation minima
     2. Issues radar vectors appropriately
     3. Ensures altitude assignments comply with MIAs

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| | |
|---|---|
| ***COMPLETION STANDARDS***<br><br>The student demonstrates full understanding of all knowledge items and demonstrates mastery of those skills required herein. | B. Issues radar vectors onto approach procedures appropriately<br>C. Issues instrument approach clearances into uncontrolled fields appropriately, as required<br>1. Complies with PTAC phraseology<br>2. Handles aircraft on missed approach appropriately<br>IV. Controller Coordination<br>A. Coordinates non-standard operations appropriately<br>B. Coordinates APREQs with enroute controller as required<br>C. Provides an adequate position relief briefing |
| ***SESSION COMPLETE*** | |

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## 2-4-6 (S3Z) TERMINAL CONTROLLER OTS EVALUATION

The student shall meet all competencies listed herein for issuance of the VATSIM S3 rating. A combined eighty (80) percent mastery in knowledge and skills categories is required.

***PURPOSE***

To evaluate the student's practical application of knowledge and skills for provision of air traffic services in a Terminal Controller position.

***SETTING***

SB or LN, KTUS or KABQ

***TIME-ON-POSITION REQ***

At least 30 hours connected in a ZAB S2 position.

At least 15 hours connected in a ZAB S3 position under a solo endorsement.

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***KNOWLEDGE and SKILLS***

GCAP, USADP-002B, and FAAO 7110.65AA as notated in X-1-3 herein.

**I. General Competencies**

A. Demonstrates mastery of all S2 concepts
B. Understanding of the terminal controller role in the NAS
    1. Adequate application of Positive Control
    2. Demonstrates intermediate scan techniques
C. Uses prescribed phraseology with allowable local variances
    1. Transfers communications appropriately

**II. Radar Competencies**

A. Airspace and Associated Procedures
    1. Understands lateral and vertical airspace boundaries
    2. Understands position split procedures and airspace delegation where applicable
B. General Concepts
    1. Adequately handles arriving and departing IFR and VFR aircraft
        a) Assigns speeds and/or altitudes as appropriate to maintain the required separation minima
        b) Applies radar identification and track association methodology as appropriate or required
            (1) Verified Mode C altitude as required
        c) Issues radar vectors appropriately
        d) Ensures altitude assignments comply with MIAs
    2. Issues, or understands, traffic point-out phraseology
        a) Issues, or understands, traffic and low-altitude alerts as appropriate
    3. Ensures pilots have the current weather information or altimeter setting when required
    4. Issues, or understands, unpublished holding instructions
C. Departure Concepts
    1. Adequately handles departing IFR and VFR aircraft
        a) Assigns headings on course as appropriate
        b) Assigns altitudes on departure as appropriate
        c) Issues VFR instructions when required
    2. Demonstrates a familiarity with local SIDs/ODPs
D. Approach Concepts
    1. Provides runway and approach information to the pilot as soon as practical
    2. Issues instrument approach clearances appropriately

a) Complies with PTAC phraseology
(1) Utilizes "maintain until" and "cross *fix*" phraseology as required
b) Demonstrates understanding of final spacing techniques to maintain separation minima
c) Understands differences in approach types, along with equipment restrictions of each
d) Issues, or understands, practice approaches

3. Issues visual approach clearances appropriately
4. Issues radar vectors appropriately IAW final approach course intercept angle criteria
5. Handles aircraft on missed approach appropriately

E. Controller Coordination
1. Ensures proper transfer of radar identification, in a timely manner, to the next sector
2. Ensures proper transfer of radio communications, in a timely manner, to the next sector
3. Coordinates APREQs when appropriate
4. Coordinates adequate missed approach instructions with the local controller as appropriate
5. Provides an adequate position relief briefing

F. Top-Down and Uncontrolled Operations
1. Demonstrates mastery of all S2 skills while providing 'top-down' air traffic services
2. Issues IFR releases to aircraft at uncontrolled fields
a) Releases aircraft IAW "one-in one-out" as required
3. Issues pop-up IFR clearance when required
4. Applies "vectoring below MVA" methodology

***COMPLETION STANDARDS***

The student demonstrates a combined eighty (80) percent mastery in knowledge and skills categories herein.

***EVALUATION COMPLETE***

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# Section 5. Enroute Controller

## 2-5-1 (C1A) ENROUTE CONCEPTS

***PURPOSE***

To introduce enroute control concepts to the student prior to working enroute sector traffic in a simulated or live environment.

***TIME*** 1.5 hrs ***SET*** CL

***PREREQUISITES***

1. Completion of S3Z and issuance of S3 rating.
2. At least 30 hours connected in a ZAB S3 position
   a. 20 hours of which must be completed at a ZAB Tier 1.
3. All ZAB Tier 1 and Tier 2 endorsements.
4. Successful completion of Academy (C1) course

***REFERENCES***

[1] 7110.65AA (4-4-6 Direct)
[2] 7110.65AA (5-4-7 PO)

[3] ZAB Alias Reference

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***KNOWLEDGE and CONCEPTS***
GCAP A.5 [PP]

I. General Concepts
   A. CRC and ERAM
      1. CRC profile setup
      2. ERAM video-map and controller profile setup
      3. ERAM command overview
         a) Initiating and terminating track
            (1) Both correctly, and using the VATSIM shortcut
         b) Initiating handoffs
         c) Initiating pointouts
         d) Data Block information and positioning
            (1) Setup either destination, aircraft type, or none
         e) Route amendments
            (1) QU and AM ### RTE syntax
   B. The enroute environment and role of the enroute controller
   C. Area of Jurisdiction
      1. Lateral and vertical full sector boundary
      2. Position splits, and specialty sectors
      3. Aircraft control within lateral boundaries
         a) LOA applicability
   D. Controller Coordination
      1. APREQs and their applicability
         a) Modification of flight plan serves as coordination with succeeding sector [1]
      2. Point-outs and their applicability [2]
      3. Shortcut alias commands for the aforementioned [3]

II. Enroute Concepts
   A. Advanced situational awareness and scan techniques
   B. Separation Requirements
      1. Lateral and vertical RVSM separation requirements
      2. Lateral and vertical Non-RVSM separation
      3. Non-radar separation techniques and requirements
   C. Traffic Management and Sequencing
      1. Maintaining an expeditious flow of traffic
      2. Techniques for adjusting aircraft speed or track to achieve initial sequencing for arrival
         a) Procedures for assigning speeds; properly combating compression
         b) Issuing descent clearances

(1) "Descend-via" phraseology

3. Techniques for adjusting aircraft speed or track to comply with enroute MIT requirements

D. Positive Control

1. Avoiding issuing control instructions that could cause conflict

E. Airspace Services

1. Task management techniques for managing top-down workload in the enroute environment
    a) Prioritization when appropriate
2. Providing weather and traffic information
    a) Enroute weather advisories and deviations

***COMPLETION STANDARDS***

The student will have a complete understanding of those knowledge items required to be successful as an enroute controller.

***SESSION COMPLETE***

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## 2-5-2 (C1B) D-SIDE CONCEPTS

***PURPOSE***

To introduce the student to practical application of knowledge pertaining to enroute controller operations, specifically working IFR aircraft in the full ZAB sector, assisting the Instructor in a D-Side position.

***TIME*** 2 hrs ***SET*** LN

***PREREQUISITES***

1. Completion standards of C1A met or exceeded

***COMPLETION STANDARDS***

The student demonstrates full understanding of all knowledge items and demonstrates mastery of those skills required herein.

***KNOWLEDGE and CONCEPTS***

GCAP A.5

I. General Concept Review
   - A. ERAM command overview
     1. Initiating and terminating track
     2. Initiating handoffs
     3. Initiating pointouts
     4. Data Block information and positioning
     5. Route amendments
        a) QU and AM ### RTE syntax
   - B. Area of Jurisdiction
     1. Lateral and vertical full sector boundary
     2. Aircraft control within lateral boundaries
        a) LOA applicability
   - C. Controller Coordination
     1. APREQs and their applicability

II. Enroute Concept Review
   - A. Advanced situational awareness and scan techniques
   - B. Separation Requirements
     1. Lateral and vertical RVSM separation requirements
   - C. Traffic Management and Sequencing
     1. Maintaining an expeditious flow of traffic
   - D. Providing weather and traffic information
     1. Enroute weather advisories and deviations

***APPLICATION of SKILLS***

I. General Concepts
   - A. Coordinates with adjacent sectors as required to provide aircraft with re-routes

II. Enroute Concepts
   - A. Monitors radio communications of the instructing controller to effectively modify Flight Data as required
     1. Initiates track of aircraft appropriately
        a) Uses ERAM syntax to initiate
        b) Uses VATSIM shortcut to initiate
     2. Initiates handoffs as required
     3. Initiates pointouts as required
     4. Correctly modifies route data using ERAM command syntax
     5. Terminates track of aircraft appropriately
   - B. Positions Flight Data Blocks (FDBs) to ensure all data can be interpreted by the control from a full sector view

***SESSION COMPLETE***

## 2-5-3 (C1C) NORTH (HEAVY WEST SPLIT) SPECIALTY

***PURPOSE***

To further develop the students to practical application of knowledge pertaining to enroute controller operations, specifically working heavy traffic in the N (HW) specialty

***TIME*** 2 hrs ***SET*** SB, N Specialty

***PREREQUISITES***

1. Completion standards of C1B met or exceeded

***COMPLETION STANDARDS***

The student demonstrates full understanding of all knowledge items and demonstrates those skills required herein. All aircraft in the SB file should be handled and clear of lateral boundaries to complete.

***KNOWLEDGE and CONCEPTS***

GCAP A.5

I. General Concept Review
   - A. Area of Jurisdiction
     1. Position splits, and specialty sectors
     2. Aircraft control within lateral boundaries
        a) LOA applicability

II. Enroute Concept Review
   - A. Advanced situational awareness and scan techniques
   - B. Separation Requirements
     1. Lateral and vertical RVSM separation requirements
   - C. Traffic Management and Sequencing
     1. Maintaining an expeditious flow of traffic
     2. Techniques for adjusting aircraft speed or track to achieve initial sequencing for arrival
        a) Procedures for assigning speeds; properly combating compression
        b) Issuing descent clearances
           (1) "Descend-via" phraseology
     3. Techniques for adjusting aircraft speed or track to comply with enroute MIT requirements
   - D. Positive Control
     1. Avoiding issuing control instructions that could cause conflict

***APPLICATION of SKILLS***

I. Enroute Concepts
   - A. Maintains positive control and advanced airspace scan
   - B. Separation Requirements
     1. Maintains lateral and vertical separation as required
     2. Maintains required MIT to lateral boundary
   - C. Traffic Management and Sequencing
     1. Maintaining an expeditious flow of traffic
     2. Adjusts aircraft speed or track to achieve required sequence for arriving and departing aircraft
        a) Issues speeds and vectors appropriately
        b) Issues climb and descent clearances, including "descend via" phraseology
     3. Provides weather and traffic information as required
     4. Provides top-down services appropriately

II. Controller Coordination
   - A. Coordinates with adjacent sectors as appropriate or required
   - B. Receives, understands, and provides a position relief brief

***SESSION COMPLETE***

## 2-5-4 (C1D) NORTHWEST (HEAVY WEST SPLIT) SPECIALTY

***PURPOSE***

To further develop the students to practical application of knowledge pertaining to enroute controller operations, specifically working heavy traffic in the NW (HW) specialty

***TIME*** 2 hrs ***SET*** SB, NW Specialty

***PREREQUISITES***

1. Completion standards of C1C met or exceeded

***COMPLETION STANDARDS***

The student demonstrates full understanding of all knowledge items and demonstrates those skills required herein. All aircraft in the SB file should be handled and clear of lateral boundaries to complete.

***KNOWLEDGE and CONCEPTS***

GCAP A.5

I. General Concept Review
   - A. Area of Jurisdiction
     1. Position splits, and specialty sectors
     2. Aircraft control within lateral boundaries

II. Enroute Concept Review
   - A. Advanced situational awareness and scan techniques
   - B. Separation Requirements
     1. Lateral and vertical RVSM separation requirements
   - C. Traffic Management and Sequencing
     1. Maintaining an expeditious flow of traffic
     2. Techniques for adjusting aircraft speed or track to achieve initial sequencing for arrival
        a) Issuing descent clearances
           (1) "Descend-via" phraseology
     3. Techniques for adjusting aircraft speed or track to comply with enroute MIT requirements
   - D. Positive Control
     1. Avoiding issuing control instructions that could cause conflict

***APPLICATION of SKILLS***

I. Enroute Concepts
   - A. Maintains positive control and advanced airspace scan
   - B. Separation Requirements
     1. Maintains lateral and vertical separation as required
     2. Maintains required MIT to lateral boundary
   - C. Traffic Management and Sequencing
     1. Maintaining an expeditious flow of traffic
     2. Adjusts aircraft speed or track to achieve required sequence for arriving and departing aircraft
        a) Issues speeds and vectors appropriately
        b) Issues climb and descent clearances, including "descend via" phraseology
     3. Provides weather and traffic information as required
     4. Provides top-down services appropriately

II. Controller Coordination
   - A. Coordinates with adjacent sectors as appropriate or required
   - B. Receives, understands, and provides a position relief brief

***SESSION COMPLETE***

## 2-5-5 (C1E) FULL SECTOR CONCEPTS

***PURPOSE***

To further develop the students to practical application of knowledge pertaining to enroute controller operations, specifically working heavy traffic across the entirety of the ZAB enroute sector

***TIME*** 2 hrs ***SET*** SB, Full Sector

***PREREQUISITES***

1. Completion standards of C1D met or exceeded

***COMPLETION STANDARDS***

The student demonstrates full understanding of all knowledge items and demonstrates those skills required herein. All aircraft in the SB file should be handled and clear of lateral boundaries to complete.

***KNOWLEDGE and CONCEPTS***

GCAP A.5

I. General Concept Review
   - A. Area of Jurisdiction
     1. Position splits, and specialty sectors
     2. Aircraft control within lateral boundaries

II. Enroute Concept Review
   - A. Advanced situational awareness and scan techniques
   - B. Separation Requirements
     1. Lateral and vertical RVSM separation requirements
   - C. Traffic Management and Sequencing
     1. Maintaining an expeditious flow of traffic
     2. Techniques for adjusting aircraft speed or track to comply with enroute MIT requirements
     3. **Handling top-down traffic and appropriate task management techniques**
   - D. Positive Control
     1. Avoiding issuing control instructions that could cause conflict

***APPLICATION of SKILLS***

I. Enroute Concepts
   - A. Maintains positive control and advanced airspace scan
   - B. Separation Requirements
     1. Maintains lateral and vertical separation as required
     2. Maintains required MIT to lateral boundary
   - C. Traffic Management and Sequencing
     1. Maintaining an expeditious flow of traffic
     2. Adjusts aircraft speed or track to achieve required sequence for arriving and departing aircraft
        a) Issues speeds and vectors appropriately
        b) Issues climb and descent clearances, including “descend via” phraseology
     3. Provides weather and traffic information as required
     4. Provides top-down services appropriately
        a) Adequately sequences and handles P50 approach sector traffic

II. Controller Coordination
   - A. Coordinates with adjacent sectors as appropriate or required
   - B. Receives, understands, and provides a position relief brief

***SESSION COMPLETE***

## 2-5-6 (C1Z) ENROUTE CONTROLLER OTS EVALUATION

The student shall meet all competencies listed herein for issuance of the VATSIM C1 rating. A combined eighty (80) percent mastery in knowledge and skills categories is required.

***PURPOSE***

To evaluate the student's practical application of knowledge and skills for provision of air traffic services in an Enroute Controller position.

***SETTING***

SB or LN, Full Sector

***TIME-ON-POSITION REQ***

At least 30 hours connected in a ZAB S3 position. 20 hours of which must be in the P50 capacity.

At least 20 hours connected in a ZAB C1 position under a solo endorsement.

***COMPLETION STANDARDS***

The student demonstrates a combined eighty (80) percent mastery in knowledge and skills categories herein.

***KNOWLEDGE and SKILLS***

GCAP, USADP-002, and FAAO 7110.65AA.

1. Enroute OTS evaluation line items deferred to division policy USADP-002.

***EVALUATION COMPLETE***

# Chapter 3. Tier 1 Training Program

## Section 1. Overview

### 3-1-1 TRAINING PROGRAM FLOW

Training is offered and required for controllers that wish to exercise the privileges of their ratings in positions at Tier 1 facilities listed in ZAB Order 7230.4C §1-2-2.

This training can either be completed at the end of each rating, or at the end of the training program, prior to beginning C1 training. A controller must hold all Tier 1 and Tier 2 endorsements prior to beginning C1 training.

### 3-1-2 TRAINING PROVISION

Training is issued in a manner acceptable to the mentor or instructor providing training, following the flow detailed in §2-1-1 and completing those tasks outlined in this chapter herein.

### 3-1-3 SOLO ENDORSEMENTS

Following the successful completion of any Tier 1 training session, if in the instructors opinion the student has demonstrated they can operate the Tier 1 position during normal VATSIM operations, they shall issue a Tier 1 solo endorsement

# Section 2. Upgrading Controllers

## 3-2-1 (S1W) DEVELOPING CONTROLLER TIER 1 TRAINING

***PURPOSE***

To introduce the student to delivery and ground operations at a Tier 1 facility

***SETTING*** SB or LN, KPHX

***COMPLETION STANDARDS***

The student demonstrates an understanding of all Knowledge and Skills items.

***KNOWLEDGE and SKILLS***

GCAP 7.5(b) and local competencies

I. Ground Competencies
   - A. Entry requirements for Class B airspace
     1. "Into/through/out-of" phraseology
   - B. PHX SOP and LOA introduction
     1. Ground controller area of responsibility
     2. Ground split taxiway responsibilities
     3. Runway assignments
     4. Runway crossing procedures
     5. Initial altitude assignments
   - C. ASDE-X introduction
     1. Identifying taxiway closures (NOTAMs)
     2. Mode C and heavy aircraft recognition
   - D. SID/DP review, including "climb-via" phraseology

***SESSION COMPLETE***

## 3-2-2 (S1X) DEVELOPING CONTROLLER TIER 1 PRACTICAL EVALUATION

An instructor shall observe the controller operate the Phoenix Ground position in an evaluative nature, and issue a Tier 1 endorsement in accordance with the following:

1. The instructor is satisfied that the controller has fully demonstrated they can operate the Tier 1 position during normal VATSIM operations, and possess a working knowledge of those Knowledge and Skills items listed in §3-2-1 herein..

### 3-2-3 (S2W) AERODROME CONTROLLER TIER 1 TRAINING

***PURPOSE***

To introduce the student to aerodrome operations at a Tier 1 facility

***SETTING*** SB or LN, KPHX

***COMPLETION STANDARDS***

The student demonstrates an understanding of all Knowledge and Skills items.

***KNOWLEDGE and SKILLS***

GCAP 7.5(b) and local competencies

I. Local Competencies
   A. Entry requirements for Class B airspace
      1. "Into/through/out-of" review
      2. East/West VFR transition route
         a) Conceptual only, outside of tower's airspace
   B. PHX SOP and LOA LC introduction
      1. Local controller area of responsibility
      2. Local split airspace delegation
      3. Initial heading assignments
      4. Initial altitude assignments

***SESSION COMPLETE***

### 3-2-4 (S2X) AERODROME CONTROLLER TIER 1 PRACTICAL EVALUATION

An instructor shall observe the controller operate the Phoenix Tower position in an evaluative nature, and issue a Tier 1 endorsement in accordance with the following:

2. The controller has logged at least fifteen (15) hours on the position under a solo certification. *(Waivable in accordance with §2-1-4 herein.)*

3. The instructor is satisfied that the controller has fully demonstrated they can operate the Tier 1 position during normal VATSIM operations, and possess a working knowledge of those Knowledge and Skills items listed in §3-2-3 herein..

## 3-2-5 (S3W) TERMINAL CONTROLLER TIER 1 TRAINING

***PURPOSE***

To introduce the student to terminal operations at a Tier 1 facility

***SETTING*** SB or LN, KPHX

***PREREQUISITES***

1. Must possess a Tier 2 endorsement for both KFLG and KLUF.

***COMPLETION STANDARDS***

The student demonstrates an understanding of all Knowledge and Skills items.

***KNOWLEDGE and SKILLS***

GCAP 7.5(b) and local competencies

I. Radar Competencies
   - A. General airspace review and area of responsibility
     1. East/West VFR transition route
     2. NAA airspace review
        a) Top altitude in each sector
        b) Video map setup (79, and 85)
   - B. PHX SOP and LOA review
     1. TRACON area of responsibility
     2. TRACON split airspace delegation overview
        a) LUF airspace delegation review
     3. Departure procedure review
     4. Arrival procedure review
     5. Handoff responsibility
        a) Assumption of control from ZAB
        b) Assumption of control to ZAB
     6. Sequence responsibility
     7. Scratchpad entries
   - C. ZAB-P50 LOA review
     1. Entrail separation requirements
     2. Routing requirements
        a) Altitude assignments for Non-RNAV departures IAW Annex 3 and 4 to ZAB
        b) Altitude assignments for aircraft on Non-RNAV arrival procedures IAW Annex 5 from ZAB

***SESSION COMPLETE***

## 3-2-6 (S3X) TERMINAL CONTROLLER TIER 1 PRACTICAL EVALUATION

An instructor shall observe the controller operate the Phoenix Approach position in an evaluative nature, and issue a Tier 1 endorsement in accordance with the following:

4. The controller has logged at least fifteen (15) hours on the position under a solo certification. *(Waivable in accordance with §2-1-4 herein.)*

5. The instructor is satisfied that the controller has fully demonstrated they can operate the Tier 1 position during normal VATSIM operations, and possess a working knowledge of those Knowledge and Skills items listed in §3-2-5 herein.

# Chapter 4. Transferring and Visiting Controllers

## Section 1. Overview

### 4-1-1 TRAINING PROGRAM FLOW

Training is offered and required for transferring and visiting controllers (TV Controllers) that wish to exercise the privileges of their ratings in positions at Tier 1 or Tier 2 facilities within ZAB airspace.

Controllers (C1's) are given automatic unrestricted field access for S3 privileges and below, however training and checkouts for Tier 1 and Tier 2 fields will be required IAW this section herein.

### 4-1-2 TRAINING PROVISION

Training is issued in a manner acceptable to the mentor or instructor providing training, following the flow detailed in §2-1-1 and completing those tasks outlined in this chapter herein.

Any subsection herein may be combined, at the discretion of the instructor or mentor, in an effort to expedite training for those controllers that have demonstrated competency.

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# Section 2. T/V Controllers Program

## 4-2-1 (TVA) TRANSFER/VISITOR GENERAL CONCEPTS

***PURPOSE***

To introduce the student to, and review, concepts related to the position they seek to control.

***SETTING*** CR

***COMPLETION STANDARDS***

The student demonstrates an understanding of all Knowledge and Skills items.

***KNOWLEDGE and SKILLS***

Local competencies

I. General Competencies
   A. Review position specific competencies
      1. Those Knowledge items outlined in the appropriate section of Chapter 2 herein
      2. Those Knowledge items outlined in the appropriate subsection of §3-2 herein

II. ZAB Policy Review
   A. Review ZAB visiting and/or transferring controller policy
   B. Review ZAB Training Operations Manual
   C. Review ZAB Controller Policy Manual

***SESSION COMPLETE***

## 4-2-2 (TVB) TRANSFER/VISITOR CAB/SCOPE CONCEPTS

When required under ZAB Order 7230.4C, the instructor or mentor may provide training to transferring or visiting controllers that adequately covers the appropriate section of either:

1. Chapter 2, if the transferring or visiting controller is a returning controller whose original date of departure was greater than one-hundred and eighty (180) days prior.

2. Chapter 3, if the transferring or visiting controller is rated C1 and seeks checkouts at a Tier 1 facility. (Though C1Z must be utilized in order to fully certify the C1 on the enroute sector)

3. Chapter 3, if the transferring or visiting controller is rated S1, S2, or S3 and requests training on a Tier 1 or Tier 2 facility.

The instructor or mentor must document which lesson, and which competencies, were covered and/or reviewed with the transferring or visiting controller. It is at the sole discretion of the instructor or mentor to recommend or complete a transferring or visiting controllers checkout.

## 4-2-3 (TVZ) TRANSFER/VISITOR OTS EVALUATION

The instructor or mentor (as appropriate) must administer an evaluation covering those concepts listed in either the applicable Training Program OTS (for transferring or visiting C1's requesting full sector certification,) or the Upgrading Controller OTS, depending on position worked. The instructor or mentor must be satisfied that the student can demonstrate competency in those knowledge and skill areas for which they are rated.

# Chapter X. Appendices

## Appendix 1. OTS Reference Matrices

### X-1-1 S1Z (2-2-4) COMPETENCY REFERENCES

| ZAB Ref | GCAP Ref | VATUSA Ref | 7110.65 Ref |
|---|---|---|---|
| I.A | A.2(a)(i) | USADP-002B 1.2.2 | 2-1-2, and 2-1-3 |
| I.A.1 | A.2(a)(ii) | USADP-002B 6.1.2a | P-2 |
| I.B.1 | A.2(a)(vii) | USADP-002B 1.2.3a | 2-4-22 |
| I.B.1(a) | | USADP-002B 1.2.3b | 2-4-22 |
| I.B.1(b) | | USADP-002B 1.2.3c | 2-4-22 |
| I.B.2(a) | A.2(a)(v)<br>A.2(a)(vi) | USADP-002B 1.2.2a<br>USADP-002B 1.2.2b | 2-6 |
| I.B.2(b) | A.2(b)(ii)(i) | USADP-002B 1.2.2c | 4-5-4 |
| I.C | A.2(a)(ii) | USADP-002B 1.2.3 | 2-4-8, 3-1-13, 2-4-16, 2-4-17, and 2-3-5 |
| I.C.1 | | USADP-002B 3.1.3 | 2-1-18 |
| I.C.II | A.2(c)(v) | USADP-002B 3.1.2 | 2-1-17 |
| I.D | *Subdivision competency only* | | |
| I.E | | USADP-002B 2.1.2 | 3-9-1 |
| I.E.1 | A.2(b)(ii)(ii) | | |
| I.E.2 | A.2(b)(ii)(i) | USADP-002B 2.1.1d | 2-3-8 |
| I.F | A.2(a)(iii) | | 2-3-1 |
| I.G | | USADP-002B 3.1.7 | 2-1-19 |
| II.A | A.2(b)(i) | USADP-002B 2.1.1 | |
| II.A.1 | A.2(b)(iii) | USADP-002B 2.2.1<br>USADP-002B 2.1.1a | 2-5, 4-2-1, 4-2-3, and 4-2-5. 2-3-1. |
| II.A.1(a) | A.2(b)(ii)(i) | USADP-002B 2.1.3 | 3-9-1 |
| II.A.1(b) | A.2(b)(ii)(i) | USADP-002B 2.1.1b | 4-5-2 |
| II.A.2 | A.2(b)(iii) | USADP-002B 2.1.4a | Chap 7 |
| II.A.2(a) | | USADP-002B 2.1.4B | 7-6 |
| II.B | | USADP-002B 2.1.1c | 2-1-29 |
| II.B.1 | A.2(d)(iii) | USADP-002B 3.1.1 | 2-1-17, 2-4-12, and 2-4-13 |
| II.C | A.2(b)(iv) | USADP-002B 2.2.1<br>USADP-002B 2.1.1a | 2-5, 4-2-1, 4-2-3, and 4-2-5. 2-3-1. |
| II.D | | USADP-002B 3.1.5 | 2-4-3 |
| III.A | A.2(c)(i) | USADP-002B 2.3.1 | 3-7-2 |
| III.B | A.2(c)(iii) | USADP-002B 2.3.2 | 3-7-2 |
| III.B.1 | A.2(c)(ii) | | 3-9-1 |

| | | | |
|---|---|---|---|
| III.B.2(a) | | USADP-002B 2.3.2a | 3-7-2 |
| III.B.2(b) | | USADP-002B 2.3.2b | 3-7-2 |
| III.B.2(c) | | USADP-002B 2.3.2c | 3-7-2 |
| III.B.3 | | USADP-002B 2.3.2d | 3-7-2 |
| III.C | | USADP-002B 2.3.2e | 3-11-1 |
| III.C.1 | | USADP-002B 2.3.2e | 3-11-1 |
| III.D | | | 3-7-2 |
| III.D.1 | | USADP-002B 2.3.2f | 3-7-2 |
| III.D.2 | A.2(d)(i) | USADP-002B 2.3.3h | 3-7-2 |
| III.D.3 | A.2(d)(iii) | USADP-002B 3.1.1 | 2-1-17, 2-4-12, and 2-4-13 |
| III.E | A.2(c)(iv) | USADP-002B 2.3.2g | 3-7-2 |
| III.E.1 | | USADP-002B 2.3.2g | 3-7-2 |

## X-1-2 S2Z (2-3-3) COMPETENCY REFERENCES

| ZAB Ref | GCAP Ref | VATUSA Ref | 7110.65 Ref |
|---|---|---|---|
| I.A | A.3(a)(ii) | USADP-002B 4.1.2, 4.1.3 | 3-1-3, and 3-9-3 |
| I.B | A.3(a)(i) | USADP-002B 4.1.1 | Chap 3 |
| I.B.1 | A.3(a)(x) | USADP-002B 6.1.2a | P-2 |
| I.C | A.3(a)(iv) | Multiple | |
| I.C.1 | A.3(a)(ix) | USADP-002B 4.9.1 | 2-1-15, and 2-1-17 |
| II.A | *Subdivision competency only* | | |
| II.B.1(a) | A.3(a)(v) | USADP-002B 4.2.1 | 3-10-1 |
| II.B.1(b) | | USADP-002B 4.2.1a | 3-10-1 |
| II.B.1(c) | | USADP-002B 4.2.6d | 3-10-1 |
| II.B.2 | A.3(a)(vi) | USADP-002B 4.2.2 | 3-8-1 |
| II.B.2(a) | A.3(a)(vi) | USADP-002B 4.2.2 | 3-8-1 |
| II.B.3 | | USADP-002B 4.2.5 | 3-8-1 |
| II.B.4 | | USADP-002B 4.2.4 | 3-8-1 |
| II.C.1 | A.3(a)(iii) | USADP-002B 4.2.6 | 3-8-1 |
| II.C.1(a) | A.3(a) | USADP-002B 4.2.6b | 3-9-10 |
| II.C.1(b) | A.3(a)(iii) | USADP-002B 4.2.6d | 3-10-1 |
| II.C.1(c) | | USADP-002B 4.2.6c | 3-9-11 |
| II.C.2 | A.3(a)(iv) | USADP-002B 4.2.7 | 3-10-1 |
| II.C.2(a) | A.3(a)(vii) | USADP-002B 4.2.7b | 3-8-1 |
| II.C.2(a)(1) | A.3(a)(vii) | USADP-002B 4.2.7b | 3-8-1 |
| II.C.2(b) | | USADP-002B 4.2.7a | 3-10-4 |
| II.C.2(c) | | USADP-002B 4.2.7d | 4-8-6 |

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|---|---|---|---|
| II.C.2(d) | | USADP-002B 4.8.10 | 4-10-12 |
| II.C.3 | | USADP-002B 4.2.8 | 3-9-6 |
| II.C.4 | A.3(a)(viii) | USADP-002B 4.8.9 | 3-9-8 |
| II.C.5 | | USADP-002B 4.2.6a | 3-9-4 |
| II.D.1 | A.3(b)(i)<br>A.3(b)(ii)<br>A.3(b)(iii) | USADP-002B 4.9.1 | 2-1-15<br>2-1-17 |

## X-1-3 S3Z (2-4-6) COMPETENCY REFERENCES

| ZAB Ref | GCAP Ref | VATUSA Ref | 7110.65 Ref |
|---|---|---|---|
| I.A | A.4(a)(x) | | |
| I.B | A.4(a)(i) | USADP-002B 5.1.1 | Chap 5 |
| I.B.1 | A.4(a)(v) | USADP-002B 5.4.4 | 5-5 |
| I.B.2 | A.4(a)(v) | | |
| I.C | | | |
| I.C.1 | A.4(a)(ix)<br>A.4(b)(vii)<br>A.4(a)(iii) | USADP-002B 5.3.16 | 5-9-4 |
| II.A.1 | A.4(a)(ii) | USADP-002B 5.2.5 | 5-4-3 |
| II.A.2 | A.4(a)(ii) | | |
| II.B.1 | Multiple (below) | USADP-002B 5.3.4 | 4-3-4 |
| II.B.1(a) | A.4(a)(viii)<br>A.4(b)(ii) | USADP-002B 5.3.13<br>USADP-002B 5.3.14 | 5-7-1, 5-7-2, and 5-7-3 |
| II.B.1(b) | A.4(a)(vi) | USADP-002B 5.3.5<br>USADP-002B 5.3.7 | |
| II.B.1(b)(1) | | USADP-002B 5.3.7 | 5-2-15 |
| II.B.1(c) | A.4(a)(viii) | USADP-002B 5.3.12<br>USADP-002B 5.4.1 | 5-6-1, 5-1-8, and 5-5-2 |
| II.B.1(d) | A.4(a)(viii) | USADP-002B 5.2.6<br>USADP-002B 5.3.11 | 5-6-1, and 4-5-7 |
| II.B.2 | A.4(a)(vii) | USADP-002B 5.4.2 | 2-1-21 |
| II.B.2(a) | A.4(a)(vii) | USADP-002B 5.4.2<br>USADP-002B 5.2.7 | 2-1-21, and 2-1-6 |
| II.B.3 | A.4(b)(iii) | USADP-002B 5.3.9 | 2-7-2 |
| II.B.4 | A.4(b)(vi) | USADP-002B 5.3.15 | 4-6-1, 4-6-2, 4-6-3, and 4-6-4 |
| II.C.1 | Multiple (below) | | |
| II.C.1(a) | A.4(c)(i) | USADP-002B 5.3.10 | 5-8-1 |
| II.C.1(b) | A.4(c)(i) | USADP-002B 5.3.10 | 5-8-1 |
| II.C.1(c) | A.4(c)(i) | USADP-002B 5.3.3 | 4-2-8 |
| II.C.2 | | | |
| II.D.1 | A.4(b)(iv) | USADP-002B 5.3.4 | 4-3-4 |

| | | | |
|---|---|---|---|
| II.D.2 | A.4(b)(i) | USADP-002B 5.5.2 | 4-8-1 |
| II.D.2(a) | A.4(b)(i) | USADP-002B 5.5.2 | 4-8-1 |
| II.D.2(a)(1) | A.4(b)(i)<br>A.4(b)(v) | USADP-002B 5.5.2 | 4-8-1 |
| II.D.2(b) | A.4(b)(ii) | USADP-002B 5.4.5 | 3-8-1 |
| II.D.2(c) | A.4(b)(v) | USADP-002B 5.5.1 | 4-8-1 |
| II.D.2(d) | | USADP-002B 5.5.4 | 4-8-11 |
| II.D.3 | A.4(b)(i) | USADP-002B 5.5.2 | 4-8-1 |
| II.D.4 | A.4(b)(ii) | USADP-002B 5.3.12 | 5-6-1 |
| II.D.5 | A.4(d)(i) | USADP-002B 5.2.3 | 5-4-10 |
| II.E.1 | A.4(a)(ix)<br>A.4(b)(vii)<br>A.4(a)(iii) | USADP-002B 5.2.1 | 5-4-5 |
| II.E.2 | A.4(a)(ix)<br>A.4(b)(vii)<br>A.4(a)(iii) | USADP-002B 5.2.1 | 5-4-5 |
| II.E.3 | | USADP-002B 5.2.4 | 2-4-12 |
| II.E.4 | A.4(d)(ii) | USADP-002B 5.2.3 | 5-4-10 |
| II.F.1 | | | |
| II.F.2 | A.4(a)(iv) | USADP-002B 5.3.1 | 4-3-4 |
| II.F.3 | A.4(a)(viii) | USADP-002B 5.3.2 | 4-2-8 |
| II.F.3 | A.4(a)(viii) | USADP-002B 5.3.12 | 5-6-1 |