

# IV. Standard Operating Procedures Program

## Nevada Division of Environmental Protection Chemical Accident Prevention Program

### Element Audit Checklist

Revision 3, 03/12/09



<b>Facility:</b>	<b>Process(es) Covered:</b>	<b>Date:</b>	
<b>A. PROCEDURE/POLICY REVIEW</b>			
<b>1) EXISTENCE, STRUCTURE AND FORMAT OF SOPs</b>		<b>Percentage Completion Score – Total 100% (Weighting of Elements is Defined Below)</b>	
Overall NDEP-CAPP Element Audit Checklist Score for Standard Operating Procedures (as evaluated in sections 2 through 9 below).		%	
<b>Notes/Comments Pertaining to Responses to Questions under Issue 1):</b>			
<b>2) EXISTENCE OF SOPs ADDRESSING SPECIFIC OPERATING PHASES</b>		<b>NAC Ref.</b>	<b>Resp. Code</b>
<i>Item #2 Completion Score – Weighted 20% of Total</i>		%	
i.	Do SOPs include steps for Initial Start-Up or Commissioning? This applies for new processes or modified processes that require unique activities for the first startup only (examples: chemical cleaning, line flushing, loop checks, process lineups unique to the initial startup).	459.95416(2a1)	
ii.	Do SOPs include steps for Normal Operations (i.e. steady state operations, including monitoring and sampling requirements)?	459.95416(2a2)	
iii.	Do SOPs include steps for Temporary Operations (examples: operating a system in manual control rather than automatic during maintenance or calibration activities; operating with select pieces of equipment out of service during maintenance activities)?	459.95416(2a3)	
iv.	Do SOPs include steps for Emergency Shut-Downs, or ESD, (i.e. under conditions necessitating shutdown in a more rapid manner than a normal, or controlled, shutdown) and does it include the applicable items noted in questions a through c below?	459.95416(2a4)	
a.	Does ESD procedure identify conditions under which a shutdown will occur automatically, provide a description of resulting actions and identify operator responsibilities?	459.95416(2a4)	
b.	Does ESD procedure identify conditions under which an ESD must be initiated manually and identify operator responsibilities?	459.95416(2a4)	

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c.	Does ESD procedure specify assignment of shutdown responsibility to qualified operators?		459.95416(2a4)	
v.	Do SOPs include steps for Emergency Operations (examples: operation when key pieces of equipment, such as a pump, fail; operation when a critical utility, such as cooling water or instrument air, fails)?		459.95416(2a5)	
vi.	Do SOPs include steps for Normal Shut-Down and does it include the applicable items noted in questions a through b below?		459.95416(2a6)	
a.	Do SOPs include steps for Normal Shut-Down for a Turnaround (i.e. controlled shutdown which includes unit depressurizing, draining and isolation)?		459.95416(2a6)	
b.	If a system can be shutdown and placed in a standby mode (i.e. not drained and isolated), does an SOP include steps for this operation?		459.95416(2a6)	
vii.	Do SOPs include steps for Start-Up following the scenarios noted in questions a through c below?		459.95416(2a7)	
a.	Do SOPs include steps for Start-Up following a Turnaround (which includes system tightness checking, purging, isolation blind removal)?		459.95416(2a7)	
b.	Do SOPs include steps for Start-Up following an ESD?		459.95416(2a7)	
c.	Do SOPs include steps for Start-Up after a system is put in standby mode (i.e. a warm startup, which assumes, that the process has not been drained or mechanically and electrically isolated)?		459.95416(2a7)	
<b>Notes/Comments Pertaining to Responses to Questions under Issue 2):</b>				
<b>3) INCLUSION OF OPERATING LIMITS IN SOPs</b>			<b>NAC Ref.</b>	<b>Resp. Code</b>
<i>Item #3 Completion Score – Weighted 10% of Total</i>			%	
i.	Do SOPs include Operating Limits for appropriate variables?		459.95416(2b)	
a.	Pressure?		459.95416(2b)	
b.	Temperature?		459.95416(2b)	

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c. Flow?		459.95416(2b)	
d. Level?		459.95416(2b)	
e. Concentration?		459.95416(2b)	
f. Other variables?		459.95416(2b)	
ii. Does each Operating Limit define the consequence of deviation from that limit?		459.95416(2b1)	
iii. Does each Operating Limit define steps or actions required to correct or avoid deviation from that limit?		459.95416(2b2)	
<b>Notes/Comments Pertaining to Responses to Questions under Issue 3):</b>			
<b>4) INCLUSION OF SAFETY &amp; HEALTH (S&amp;H) CONSIDERATIONS</b>		<b>NAC Ref.</b>	<b>Resp. Code</b>
<i>Item #4 Completion Score – Weighted 10% of Total</i>		<b>%</b>	
i. Does S&H data include properties of, and hazards presented by, chemicals used in process?		459.95416(2c1)	
ii. Does S&H data include precautions, such as Engineering Controls, Administrative Controls, and personal protective equipment (PPE) necessary to prevent exposure?		459.95416(2c2)	
iii. Does S&H data include control measures to be taken if physical contact or airborne exposure occurs?		459.95416(2c3)	
iv. Does S&H data include quality control for raw materials?		459.95416(2c4)	
v. Does S&H data include control of hazardous chemical inventory levels?		459.95416(2c5)	
vi. Does S&H data include any special or unique hazards?		459.95416(2c6)	

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<b>Notes/Comments Pertaining to Responses to Questions under Issue 4):</b>			
<b>5) INCLUSION OF SAFETY SYSTEMS AND THEIR FUNCTIONS IN THE SOPs</b>	<b>NAC Ref.</b>	<b>Resp. Code</b>	
<i>Item #5 Completion Score – Weighted 10% of Total</i>	<b>%</b>		
i. Is Safety System Description, SSD, included as a specific SOP, or as an addendum, in SOP manual, and does it include applicable portions of items a through k below?	459.95416(2d)		
a. Emergency Shut-Down System?	459.95416(2d)		
b. Toxic Gas Sensors?	459.95416(2d)		
c. Combustible Gas Sensors?	459.95416(2d)		
d. Flame Detectors?	459.95416(2d)		
e. Firewater System?	459.95416(2d)		
f. Emergency Generator?	459.95416(2d)		
g. Uninterruptible Power Supply (UPS)?	459.95416(2d)		
h. Flare System, Incinerator or Vent Scrubber?	459.95416(2d)		
i. Audible or Visual Alarms?	459.95416(2d)		
j. Building Ventilation System?	459.95416(2d)		
k. Other Safety Systems (list below)?	459.95416(2d)		

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<b>Notes/Comments Pertaining to Responses to Questions under Issue 5):</b>		
<b>6) CONSISTENCY WITH PSI and PROCEDURE CLARITY</b>	<b>NAC Ref.</b>	<b>Resp. Code</b>
<i>Item #6 Completion Score – Weighted 5% of Total</i>	%	
i. Do the SOPs appear to cover operation of the equipment and instruments defined in PSI?	459.95416(1a)	
ii. Do written SOPs appear to provide clear instructions in a language understood by all operating personnel?	459.95416(1b)	
<b>Notes/Comments Pertaining to Responses to Questions under Issue 6):</b>		
<b>7) EXISTENCE OF SAFE WORK PRACTICES</b>	<b>NAC Ref.</b>	<b>Resp. Code</b>
<i>Item #7 Completion Score – Weighted 10% of Total</i>	%	
i. Has a Hot Work procedure with permit system been developed that requires:	459.95433	
a. Compliance with the fire prevention and protection requirements in 29CFR1910.252(a)?	459.95433	
b. Permit authorization prior to conducting hot work activity?	459.95433	
c. Indication of object upon which hot work is to be performed and the date(s) of the hot work authorization?	459.95433	
ii. Does a Lock-Out/Tag-Out procedure exist?	459.95416(3d1)	
iii. Does a Confined Space Entry procedure exist?	459.95416(3d2)	

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iv.	Does a Process Equipment Opening and Line Breaking procedure exist that includes direction for depressurizing, draining and purging?	459.95416(3d3)	
v.	Has a procedure for Controlled Access into a facility by maintenance, contractor, laboratory or other support personnel been developed?	459.95416(3d4)	
vi.	If other Safe Work Practices have been defined, has the procedure been developed?	459.95416(3d5)	
<b>Notes/Comments Pertaining to Responses to Questions under Issue 7):</b>			
<b>8) MANAGEMENT PLAN AND DOCUMENT CONTROL</b>		<b>NAC Ref.</b>	<b>Resp. Code</b>
<i>Item #8 Completion Score – Weighted 5% of Total</i>		%	
i.	Is there a site-specific plan that addresses how the Standard Operating Procedures Program requirements will be developed and maintained, including:	459.95341	
a.	Document the names of person(s) who are members of the team with overall responsibility for the development, implementation and integration of the Standard Operating Procedures Program Requirements?	459.95341	
b.	How is facility program monitored for compliance with NAC 459.95416, CAPP Standard Operating Procedures Program?	459.95341	
c.	How it has been determined that all appropriate operating scenarios have been identified and the appropriate procedures have been developed.	459.95341	
d.	How SOPs and SWPs are written and approved (including development of operating limits, safety & health considerations and safety system description).	459.95341	
e.	How SOPs and SWPs are implemented in the plant?	459.95341	
f.	How SOPs are reviewed annually to determine if they are current and accurate?	459.95341	
g.	How the SOPs and SWPs are determined to provide clear instructions in a language understood by all operators?	459.95341	

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ii. Is there a site-specific policy or procedure that addresses how SOP and SWP documentation is controlled to ensure that the most current information is in circulation and use?	459.95341	
<b>Notes/Comments Pertaining to Responses to Questions under Issue 8):</b>		
<b>9) VERIFICATION OF SOPs and SWPs PROGRAM IMPLEMENTATION</b>	<b>NAC Ref.</b>	<b>Resp. Code</b>
<i>Item #9 Completion Score – Weighted 30% of Total</i>	%	
i. Do SOPs appear to be in use in the plant, and whether hard copy or on-line, appear to be readily accessible by personnel who work in or maintain a process? <b>Refer to Part B-1</b>	459.95416(1) 459.95416(3a)	
ii. Does SSD appear to be complete based on review of Process (Block) Flow Diagram, P&ID, and site inspection? <b>Refer to Part B-2</b>	459.95416(2d)	
iii. Do SWPs appear to be in use in the plant, and whether hard copy or on-line, appear to be readily accessible by personnel who work in or maintain a process? <b>Refer to Part B-3</b>	459.95416(3d)	
iv. Are SOPs being reviewed as often as necessary to assure that they reflect current operating practice and are they certified annually that they are current and accurate? <b>Refer to Part B-4</b>	459.95416(3b)	
<b>Notes/Comments Pertaining to Responses to Questions under Issue 9):</b>		
<b>General Records Audit/Review Notes/Comments:</b>		

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<b>B. ON-SITE INSPECTION</b>				
<b>1) SELECT 1 OR 2 INDIVIDUAL SOPs TO VERIFY IMPLEMENTATION</b>				
<i>List on the Following Table:</i>				
#	SOP ID #	Title - Purpose/Description Summary		
i				
ii				
iii				
iv				
Inquiry/Observation				Resp. Code :
				i
				ii
				iii
				iv
a.		Does observation of actual practice indicate that written SOP is available and being followed (look for use of operating procedures along with checklists, monitoring forms, and sample logs)?		
b.		Is PPE identified in SOP in use or otherwise readily available?		
c.		Is the SOP of the most recent revision?		
d.		Do equipment label or descriptions match the SOPs?		
e.		Do actual Engineering Controls appear to match those identified in SOP?		
f.		Do actual Administrative Controls appear to match those identified in SOP?		
g.		Are alarm settings or safe operating limits that are noted in the SOPs consistent with those settings or limits posted on the unit, displayed on the DCS system or noted elsewhere on the unit?		
<b>Notes/Comments Pertaining to Responses to Questions under Issue 1):</b>				

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<b>2) VERIFY THAT SSD IS COMPLETE</b>		<b>NAC Ref.</b>	<b>Resp. Code</b>		
a. Does SSD appear to be complete based on review of Process (Block) Flow Diagram, P&ID, and site inspection?		459.95416(2d)			
<b>Notes/Comments Pertaining to Responses to Questions under Issue 2):</b>					
<b>3) SELECT 1 OR 2 INDIVIDUAL SWPs TO VERIFY IMPLEMENTATION</b> <i>List on the Following Table:</i>					
<b>#</b>	<b>SWP ID #</b>	<b>Title - Purpose/Description Summary</b>			
i					
ii					
iii					
iv					
<b>Inquiry/Observation</b>		<b>Resp. Code :</b>			
		<b>i</b>	<b>ii</b>	<b>iii</b>	<b>iv</b>
a. Does observation of actual practice indicate that written SWP is available and being followed (look for completed SWP permit forms)?					
b. Is PPE identified in SWP in use or otherwise readily available?					
c. Is the SWP of the most recent revision?					
<b>Notes/Comments Pertaining to Responses to Questions under Issue 3):</b>					

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4) VERIFY THAT SOPs ARE CURRENT	NAC Ref.	Resp. Code
a. Are SOPs being reviewed as often as necessary to assure that they reflect current operating practice? <i>(Look for evidence of active MOC system)</i>	459.95416(3b)	
b. Does facility staff certify annually that (Master or Original) SOPs are current and accurate? <i>(Look for evidence of annual certification)</i>	459.95416(3b)	
<b>Notes/Comments Pertaining to Responses to Questions under Issue 4):</b>		
<b>General On-Site Inspection Notes/Comments:</b>		



**C. INTERVIEWS**

**1) SELECT TWO OR MORE PERSONNEL TO INTERVIEW REGARDING THE EFFECTIVENESS OF SOP'S USING THE FOLLOWING QUESTION SETS.**

*Responses are to be Logged on Following Pages:*

<b>Question Set</b>	<b>Question to Consider</b>
<b>a</b>	What is your job description and associated tasks?
<b>b</b>	How do you access the SOPs?
<b>c</b>	How often do you use the SOPs? Are checklists or log sheets used? If so, to what extent and for what procedures? How useful are the SOPs for day to day reference?
<b>d</b>	Do the SOPs include terms or language that is not understandable to you? Do the SOPs accurately reflect how the process steps are performed?
<b>e</b>	Are you involved in developing or reviewing the SOPs?
<b>f</b>	Are Safe Work Practices, such as Hot Work permits, Lock-Out/Tag-Out permits, Confined Space Entry permits, Line Breaking permits and/or Controlled Access, in place and being followed? Are you involved in implementing these procedures? If so, how are you involved? Are the Safe Work practices proving to be effective? Do other such Safe Work practices and policies appear to be needed?

**2) RECORD RESPONSES OF SELECTED PERSONNEL TO QUESTIONS FROM THE QUESTION SETS**

*Refer to Part C-1*

**Employee Profile**

<b>Job Title/Position</b>	<b>Department/Unit/Group</b>	<b>Yrs in Job</b>	<b>Yrs w/Co.</b>

**Response to Question Set \_:**