

**FOUR CORNERS POWER PLANT
INITIAL INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN § 257.82
RETURN WATER POND (RWP)
FC_InflowFlood_013_20200228**

Hydrologic and Hydraulic Capacity Criteria	Hydrologic and Hydraulic Capacity Documentation
<p>§ 257.82 Hydrologic and hydraulic capacity requirements for CCR surface impoundments</p> <p><i>(a) The owner or operator of an existing or new CCR surface impoundment or any lateral expansion of a CCR surface impoundment must design, construct, operate, and maintain an inflow design flood control system as specified in paragraphs (a)(1) and (2) of this section.</i></p> <p><i>(1) The inflow design flood control system must adequately manage flow into the CCR unit during and following the peak discharge of the inflow design flood specified in paragraph (a)(3) of this section.</i></p> <p><i>(2) The inflow design flood control system must adequately manage flow from the CCR unit to collect and control the peak discharge resulting from the inflow design flood specified in paragraph (a)(3) of this section.</i></p> <p><i>(3) The inflow design flood is:</i></p> <p><i>(i) For a high hazard potential CCR surface impoundment, as determined under § 257.73(a)(2) or § 257.74(a)(2), the probable maximum flood;</i></p> <p><i>(ii) For a significant hazard potential CCR surface impoundment, as determined under § 257.73(a)(2) or § 257.74(a)(2), the 1,000-year flood;</i></p> <p><i>(iii) For a low hazard potential CCR surface impoundment, as determined under § 257.73(a)(2) or § 257.74(a)(2), the 100-year flood; or</i></p> <p><i>(iv) For an incised CCR surface impoundment, the 25-year flood.</i></p> <p><i>(b) Discharge from the CCR unit must be handled in accordance with the surface water requirements under §257.3-3.</i></p> <p><i>(c) Inflow design flood control system plan –</i></p> <p><i>(1) Content of the Plan. The owner or operator must prepare initial and periodic inflow design flood control system plans for the CCR unit according to the timeframes specified in paragraphs (c)(3) and (4) of this section. These plans must document how the inflow design flood control system has been designed and constructed to meet the requirements of this section. Each plan must be supported by appropriate engineering calculations. The owner or operator of the CCR unit has completed the inflow design flood control system plan when the plan has been placed in the facility’s operating record as required by §257.105(g)(4).</i></p> <p><i>(2) Amendment of the Plan. The owner or operator of the CCR unit may amend the written inflow design flood control system plan at any time provided the revised plan is placed in the facility’s operating record as required by §257.105(g)(4). The owner or operator must amend the written inflow design flood control system plan whenever there is a change in conditions that would substantially affect the written plan in effect.</i></p> <p><i>(3) Timeframes for preparing the initial plan -</i></p> <p><i>(i) Existing CCR surface impoundments. The owner or operator must prepare the initial inflow design flood control system plan no later than October 17, 2016.</i></p> <p><i>(ii) New CCR surface impoundments and any lateral expansion of a CCR surface impoundment. The owner or operator must prepare the initial inflow design flood control system plan no later than the date of initial receipt of CCR in the CCR unit.</i></p> <p><i>(4) Frequency for revising the plan. The owner or operator must prepare periodic inflow design flood control system plans required by paragraph (c)(1) of this section every five years. The date of completing the initial plan is the basis for establishing the deadline to complete the first periodic plan. The owner or operator may complete any required plan prior to the required deadline provided the owner or operator places the completed plan into the facility’s operating record within a reasonable amount of time. In all cases, the deadline for completing a subsequent plan is based on the date of completing</i></p>	<p>This Initial Inflow Design Flood Control System Plan (Plan) document has been prepared specifically for the new Return Water Pond (RWP) at the Four Corners Power Plant (FCPP). Arizona Public Service (APS) is the operator of FCPP.</p> <p>This Plan has been prepared in accordance with the requirements prescribed in §257.82 of the Federal Register, Volume 80, Number 74, dated April 17, 2015 (U. S. Government, 2015) for hydrologic and hydraulic capacity requirements for existing and new Coal Combustion Residual (CCR) surface impoundments. Section §257.82 is reproduced in the column to the left for reference purposes. This document serves as the initial plan described in §257.82 (c).</p> <p>The RWP is a new CCR surface impoundment facility with two cells (labelled “FGD” and “RWP” but collectively referenced as the RWP) and dikes on all sides. The embankments have a maximum height of approximately 13 feet and a crest elevation of 5381.1 feet above mean sea level (amsl). The RWP only receives inflows from plant discharges and from direct precipitation (i.e. there is no surface run-on from upstream tributary basins). The maximum operating water surface elevation is 5379 feet amsl providing 2.1 feet of freeboard as available storage volume above the dead pool storage, operational storage, and 30-day outage storage volumes. The elevation-area-capacity information is provided in Attachment 1.</p> <p>Inflow to the RWP is managed by four distinct pumping stations, which are manually operated by plant personnel. Outflow from the RWP is managed by a dedicated pumping station, which is manually operated by plant personnel. Water in the RWP is pumped back to the plant and used as process makeup water.</p> <p>In a separate certification dated February 28, 2020, a qualified professional engineer certified that the Initial Hazard Potential Classification for the RWP was conducted in accordance with the requirements of § 257.74(a)(2) and that the RWP can be categorized as a “Low Hazard Potential CCR Surface Impoundment”. Therefore, as per § 257.82(a)(3)(iii), the inflow design flood is the 100-year flood.</p> <p>Required Plan Contents</p> <ol style="list-style-type: none"> 1. “§ 257.82(a)(1) The inflow design flood control system must adequately manage flow into the CCR unit during and following the peak discharge of the inflow design flood specified in paragraph (a)(3) of this section.” <p>The RWP is a diked surface impoundment. As such, all runoff from upstream tributary basins are diverted around the surface impoundment. There is no runoff inflow to the impoundment during the inflow design flood.</p> <ol style="list-style-type: none"> 2. “§ 257.82(a)(2) The inflow design flood control system must adequately manage flow from the CCR unit to collect and control the peak discharge resulting from the inflow design flood specified in paragraph (a)(3) of this section.” <p>The RWP is designed to contain the direct precipitation resulting from the 100-year, 24-hour precipitation event (2.36 inches). The RWP has a freeboard depth is 2.1 feet, which is sufficient to manage the inflow design flood without discharge.</p> <ol style="list-style-type: none"> 3. “§ 257.82(a)(3) The inflow design flood is: . . . (iii) For a low hazard potential CCR surface impoundment, as determined under § 257.73(a)(2) or § 257.74(a)(2), the 100-year flood.” <p>As identified in accordance with § 257.74(a)(2), the RWP is a low hazard potential CCR surface impoundment; therefore, the inflow design flood is the 100-year flood.</p>

the previous plan. For purposes of this paragraph (c)(4), the owner or operator has completed an inflow design flood control system plan when the plan has been placed in the facility's operating record as required by §257.105(g)(4).

(5) The owner or operator must obtain a certification from a qualified engineer stating that the initial and periodic inflow design flood control system plans meet the requirements of this section.

(d) The owner or operator of the CCR unit must comply with the record keeping requirements specified in §257.105(g), the notification requirements specified in §257.106(g), and the internet requirements specified in §257.107(g).

4. *"§ 257.82(b) Discharge from the CCR unit must be handled in accordance with the surface water requirements under §257.3-3."*
There is no discharge from the RWP other than by pumping. Stormwater collected in the RWP is pumped back to the plant and used as process makeup water.
5. *"§ 257.82(c)(1) Content of the Plan. The owner or operator must prepare initial . . . inflow design flood control system plans for the CCR unit . . . The owner or operator of the CCR unit has completed the inflow design flood control system plan when the plan has been placed in the facility's operating record as required by §257.105(g)(4)."*
This Initial Inflow Design Flood Control Plan serves as the initial plan prescribed herein.
6. *"§ 257.82(c)(2) Amendment of the Plan. The owner or operator of the CCR unit may amend the written inflow design flood control system plan at any time . . . whenever there is a change in conditions that would substantially affect the written plan in effect."*
APS acknowledges this requirement.
7. *"§ 257.82(c)(3) Timeframes for preparing the initial plan - . . . (ii) New CCR surface impoundments and any lateral expansion of a CCR surface impoundment. The owner or operator must prepare the initial inflow design flood control system plan no later than the date of initial receipt of CCR in the CCR unit."*
The RWP is a new CCR impoundment at the Four Corners Power Plant. The Initial Inflow Design Flood Control System Plan is included herein.
APS acknowledges this requirement.
8. *"§ 257.82(c)(4) Frequency for revising the plan. The owner or operator must prepare periodic inflow design flood control system plans . . . every five years. . . the owner or operator has completed an inflow design flood control system plan when the plan has been placed in the facility's operating record as required by §257.105(g)(4)."*
APS acknowledges this requirement.
9. *"§ 257.82(c)(5) The owner or operator must obtain a certification from a qualified engineer stating that the initial and periodic inflow design flood control system plans meet the requirements of this section."*
Certification by a professional engineer is included as an attachment to this document.
10. *"§ 257.82(d) The owner or operator of the CCR unit must comply with the record keeping requirements specified in §257.105(g), the notification requirements specified in §257.106(g), and the internet requirements specified in §257.107(g)."*
APS acknowledges this requirement.

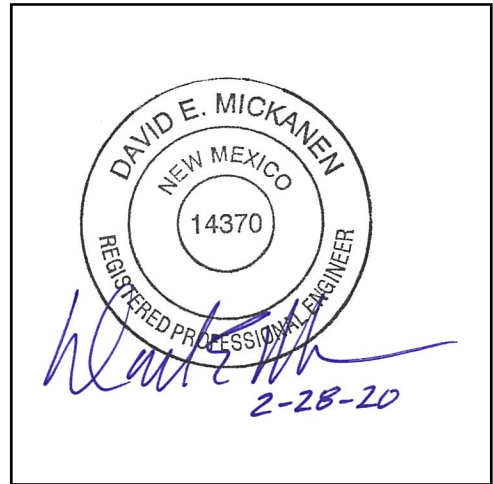
Certification Statement 40 CFR § 257.82(c)(5) – Initial Inflow Design Flood Control System Plan for a New CCR Surface Impoundment

CCR Unit: Arizona Public Service; Four Corners Power Plant; Return Water Pond

I, David E. Mickanen, being a Registered Professional Engineer in good standing in the State of New Mexico, do hereby certify, to the best of my knowledge, information, and belief, that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above-referenced CCR Unit, that the information contained in the initial inflow design flood control system plan dated February 28, 2020 meets the requirements of 40 CFR § 257.82.

David E. Mickanen, P.E.
Printed Name

February 28, 2020
Date



Attachment 1

Elevation-Area-Capacity

RWP EAC			
Elevation (ft)	Area (acres)	Storage (ft ³)	Cumulative Storage (acre-ft)
5364	0.0141	0.0000	0.0141
5366	0.0836	4,257.3316	0.1118
5368	0.1804	11,500.7248	0.3759
5370	2.8629	132,566.3647	3.4192
5372	3.1389	261,439.7510	9.4210
5374	3.4496	286,994.2635	16.0095
5376	4.5845	349,962.3704	24.0435
5378	4.9425	414,993.7397	33.5704
5380	5.3262	447,302.3051	43.8391
5381	5.5147	236,113.7307	49.2595

