ADP CR3, LLC

Crystal River Nuclear Plant
15760 W. Power Line Street
Crystal River, FL 34428
Docket 50-302
Docket 72-1035
Operating License No. DPR-72

10 CFR 50.71(e)
10 CFR 50.54(a)(3)
10 CFR 71.106(b)
10 CFR 72.140(d)
10 CFR 50.59(d)(2)
10 CFR 72.48(d)(2)

May 29, 2024
3F0524-02

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Crystal River Unit 3 – Safety Analysis Report, Quality Assurance Program and 10 CFR 50.59 – 10 CFR 72.48 Report – May 2024

Reference: Crystal River Unit 3 – Safety Analysis Report, Quality Assurance Program and 10 CFR 50.59 - 10 CFR 72.48 Report – May 2022 (ADAMS Accession No. ML22138A042)

Dear Sir or Madam:

In accordance with 10 CFR 50.54(a)(3), 10 CFR 50.71(e), 10 CFR 71.106(b) and 10 CFR 72.140(d) ADP CR3, LLC (ADP CR3), hereby submits revisions to the Crystal River Unit 3 (CR3) Defueled Safety Analysis Report (DSAR) and the CR3 Quality Assurance Program Manual (CR3-QAPM), as Attachment 3 and Attachment 4 to this report.

The attached DSAR, Revision 10, replaces the previous revision of the DSAR in its entirety. In this revision, text changes are indicated by revision bars on the outside right border of each page. This DSAR revision includes changes to CR3 that have been implemented subsequent to the May 17, 2022 submittal (Reference). As required by 10 CFR 50.71(e), a summary of changes made to the DSAR, from Revision 9 to Revision 10, is provided in Attachment 1.

The attached CR3-QAPM, Revision 3, includes changes associated with the quality classification of Radioactive Waste Containers (RWC) and liners used to store GTCC waste in the ISFSI. The changes are indicated by revision bars on the outside right border of each page. The changes are not considered to be reductions in commitments. As required by 10 CFR 50.54(a)(3) and 10 CFR 50.71(e), a summary of changes made to the CR3- QAPM, from Revision 2 to Revision 3, is provided in Attachment 2.

There have been no evaluations completed under 10 CFR 50.59 or 10 CFR 72.48 for changes made to the plant or the Independent Spent Fuel Storage Installation (ISFSI) for this reporting period (April 1, 2022 through April 1, 2024).

This letter contains no new regulatory commitments.

If you have any questions regarding this submittal, please contact Mr. Craig Miller, ISFSI Licensing Manager, at (352) 634-3954.

I declare under penalty of perjury that the forgoing is true and correct. Executed on May 29, 2024.

Sincerely,

Billy Reid
Nuclear Executive

BR/clm

Attachment 1 DSAR Revision Change Summary Description
Attachment 2 CR3-QAPM Revision Change Summary Description
Attachment 3 DSAR Revision 10
Attachment 4 CR3 QAPM Revision 3

cc: NMSS Project Manager
Regional Administrator, Region I

ADP CR3, LLC

DOCKET NUMBER 50-302 / 72-1035
LICENSE NUMBER DPR-72

ATTACHMENT 1

DSAR REVISION
CHANGE SUMMARY DESCRIPTION

DSAR REVISION CHANGE SUMMARY DESCRIPTION

The Defueled Safety Analysis Report (DSAR) Revision change summary below reflects any plant changes, license transfer titles and organizational changes, and analyses that constitute changes to the DSAR since the publication of Revision 9 (last submitted revision).

DSAR Revision 10, latest revision, includes changes made to incorporate the following:

DSAR Change Package 2023-01: This change revised DSAR Chapter 1, Introduction & Summary, as follows:

- Removed discussion of the on-site storage container (OSSC), and added discussion of two new Radioactive Waste Containers (RWC-WA). The GTCC waste contents of the OSSC were transferred to the RWC-WAs.
- Clarified the number of HSMs and DSCs in the ISFSI.
- Added DSAR Revision 9 to the list of CR3 DSAR revisions submitted to the NRC.

DSAR Change Package 2023-02: This change revised DSAR Chapter 2, Site & Environment, Chapter 4, Radioactive Waste & Radiation Protection, and Chapter 5, Conduct of Operations, as follows:

- Changed “Company” to “The Crystal River site” in discussion of the property.
- Removed discussion of runway lights, rotating beacon, and windsock at the Crystal River airport.
- Removed/revised information pertaining to the liquid waste systems to provide a more accurate description.
- Removed reference to the Health Physics Section and Plant Operating Manual as they are no longer applicable terms.
- Removed discussion of the safe operation of the plant, since it is no longer operating.
- Added reference to the regulation for the respiratory protection program physical requirements.
- Removed redundant sentence regarding bioassay services.
- Removed detailed discussion of Independent Safety Review and added reference to the QAPM as the ISR is addressed in the QAPM.
- Editorial corrections (punctuation)

DSAR Change Package 2023-04: This change revised DSAR Chapter 2, Site & Environment, Chapter 4, Radioactive Waste & Radiation Protection, and Chapter 5, Conduct of Operations, as follows:

- Changed title of referenced calculation N18-0003 from “Calculation of X/Q & D/Q for SAFSTOR” to “Calculation of X/Q & D/Q for CR3” as CR3 was no longer in SAFSTOR.
- Changed revision level of calculation of calculation N18-0003 from Rev. 1 to Rev. 2.
- Corrected numbering of bullets in Section 5.6 (editorial corrections).

ADP CR3, LLC

DOCKET NUMBER 50-302 / 72-1035
LICENSE NUMBER DPR-72

ATTACHMENT 2

CR3-QAPM REVISION
CHANGE SUMMARY DESCRIPTION

CR3-QAPM REVISION CHANGE SUMMARY DESCRIPTION

CR3-QAPM Revision 3, latest revision, includes changes made to incorporate the following:

- Appendix A was revised to include the RWC liner as an Important to Safety (ITS) Quality Category B component for the transportation of GTCC waste.
- A note was added to Appendix A to clarify that there are no required ITS functions of the RWC and liner during storage of GTCC waste, but the RWC has been conservatively classified as ITS Quality Category A for confinement boundary integrity and the liner has been conservatively classified as ITS Quality Category B for shielding during storage. Both the RWC and liner have been classified as ITS Quality Category B for transportation of GTCC waste.
- Minor editorial changes (correct punctuation, remove remnant from a previously deleted sentence).

ADP CR3, LLC

DOCKET NUMBER 50-302 / 72-1035
LICENSE NUMBER DPR-72

ATTACHMENT 3

DSAR
REVISION 10

Defueled Safety Analysis Report
Crystal River Unit 3
REVISION 10

REVISION SUMMARY
(DSAR2023-01, 02, and 04)

Section	Description of Change
1.1.1	Removed reference to OSSC and added discussion of RWCs, and provided additional discussion/clarification on number of HSMs and DSCs.
1.1.2	Added NRC submittal information "Revision 9, Submitted May 17, 2022."
1.2.2	Removed reference to OSSC and added discussion of RWCs.
2.2.2	Replaced Company with The Crystal River Site.
2.2.4	Removed information pertaining to runway lights, beacons, and windsocks.
2.5	Title of Calculation changed from SAFSTOR to CR3.
4.1	Removed information pertaining to liquid waste systems.
4.1.1	Removed information pertaining to when liquid waste is collected and added information pertaining to where sampling guidance is maintained.
4.1.2	Added detail for waste treatment.
4.2.3	Deleted extra period and space.
4.3.1	Removed Health Physics Department and Plant Operating Manual references.
4.3.5	Removed information pertaining to operation of the plant.
4.3.6	Removed the description of bioassay services and added the regulation the program adheres to.
Table 4-1	Deleted additional space between to and activation. Changed N18-003 calculation from Rev 1 to Rev 2.
5.6	Corrected numbering.
5.8.1	Minimized section.

TABLE OF CONTENTS

1. INTRODUCTION AND SUMMARY

1.1 INTRODUCTION

1.1.1 GENERAL INFORMATION

As documented in Nuclear Regulatory Commission (NRC) to Crystal River Nuclear Plant (CR3) letter dated March 13, 2013 (ADAMS Accession No. ML13058A380), the NRC has acknowledged CR3's certification of permanent cessation of power operation and permanent removal of fuel from the reactor vessel.

All spent nuclear fuel is in dry storage in the Independent Spent Fuel Storage Installation (ISFSI) and all new fuel has been shipped offsite to a new owner. As such, no SSCs at CR3 meet the definition of safety related in accordance with 10 CFR 50.2.

The DSAR was developed as the principal licensing source document describing pertinent equipment, structures, systems, operational constraints and practices, accident analyses, and decommissioning activities associated with the defueled status of the Crystal River Unit 3 Nuclear Generating Plant. As such, the DSAR is intended to serve in the same role as the Final Safety Analysis Report (FSAR) during the period of power operation.

Construction of CR3 was authorized by the Atomic Energy Commission through issue of provisional construction permit CPPR-51 on September 25, 1968 in Docket 50-302. Construction of CR3 was completed and the operating license issued December 3, 1976. Fuel was loaded in 1976. CR3 last produced power in September 2009, while shutting down for Refuel 16. During activities to replace steam generators, a portion of the containment concrete wall delaminated. While completing repairs additional delamination occurred. CR3 was officially retired on February 5, 2013.

The CR3 Nuclear Steam Supply System (NSSS) was a pressurized water reactor type. It used chemical shim for reactivity control and generated steam with a small amount of superheat in Once-Through Steam Generators (OTSG). The NSSS and nuclear fuel were supplied by Babcock & Wilcox Company (B&W).

CR3 has an ISFSI located on the east berm of the plant. The ISFSI has the capacity for 40 Dry Shielded Canisters (DSCs), each holding up to 32 fuel assemblies. The ISFSI consists of 40 NUHOMS Reinforced Concrete Horizontal Storage Modules (type HSM-H), of which 39 contain one 32PTH1-TYPE 2W DSC, manufactured for CR3 by Areva TransNuclear Corporation, under Certificate of Compliance 1004, Amendment Number 14. One HSM-H is empty. The ISFSI also includes two NUHOMS Reinforced Concrete Horizontal Storage Modules (type HSM-W), each containing one Radioactive Waste Container (RWC-WA) which contain greater than class C waste. The 10 CFR 72.212 Report that documents how the site meets Part 72 has been issued as procedure ISFS-0212.

On January 22, 2019, CR3 submitted a Partial Site Release request with the NRC to reduce the licensed footprint by releasing 3854 acres of the "non-impacted" areas from the 4738-acre site per 10 CFR 50.83, Release of Part of a Power Reactor Facility or Site for Unrestricted Use (ADAMS Accession No. ML19022A076). As documented in NRC to CR3 letter dated January 2, 2020 (ADAMS Accession No. ML19339G509), the NRC approved the release of the non-impacted areas. The new 884-acre Site, also referred to as the Controlled Area and defined by the new Site Boundary, is reflected in Chapter 2.

On April 1, 2020, the NRC approved transfer of CR3 from Duke Energy Florida, LLC (DEF) to ADP CR3, LLC (ADP CR3) to commence decontamination, dismantlement and demolition (ADAMS Accession No. ML20069A023). On October 1, 2020 closing took place and ADP CR3 became the Facility Licensee and the updated PSDAR became effective changing the plant decommissioning strategy from SAFSTOR to DECON.

1.1.2 CRYSTAL RIVER UNIT 3 DSAR REVISIONS (SUBMITTED TO NRC)

Revision 0, Submitted August 31, 2017
Revision 1, Submitted May 24, 2018
Revision 6, Submitted May 18, 2020
Revision 9, Submitted May 17, 2022

1.2 SUMMARY PLANT DESCRIPTION

1.2.1 SITE CHARACTERISTICS

The 884-acre site is characterized by isolation from nearby population centers; sound foundation for structures; and favorable conditions of hydrology, geology, seismology, and meteorology.

1.2.2 ISFSI CHARACTERISTICS

CR3 has 1,243 spent nuclear fuel assemblies stored at the site. The fuel assemblies are stored in dry storage on an ISFSI pad. The ISFSI is described in Section 1.1.1. In addition to the spent fuel assemblies, CR3 has one failed fuel basket stored within the ISFSI in a dry shielded canister with spent fuel, and two Radioactive Waste Containers (RWC-WAs) which contain greater than class C waste.

1.3 QUALITY PROGRAM

The Quality Program is located in a document entitled Crystal River Quality Assurance Program Manual (QAPM).

1.4 CRYSTAL RIVER UNIT 3 AND DUKE ENERGY'S FOSSIL PLANTS

Duke Energy currently provides utility services to Crystal River Unit 3 (ADP CR3), such as potable water, sewage and fire service water. The Decommissioning Services Agreement (DSA), Section 6.17 states "Utilities and Site Maintenance Services. Contractor, at its own expense, shall arrange with the appropriate utility companies and service providers for the provision to the CR-3 Facility of water, sewer, trash collection, electricity, telephone, vegetation control, access control and similar utility and site maintenance services reasonably required for the performance of Contractor's obligations under this Agreement." Duke Energy has agreed that any change from Duke Energy's supply of the above listed services would be coordinated with ADP CR3, to provide reasonable time to allow transfer without interruption.

1.5 CONCLUSIONS

On the basis of the information presented in this Defueled Safety Analysis Report and referenced material, ADP CR3 concludes that CR3 was designed, constructed, and is being operated without undue risk to the health and safety of the public.

1.6 REFERENCES

1. G/C, Inc., Structural Calculation FC 16.00.1/1A, Duke Calculation S02-0016, Revision 0, Attachment 1.
2. Daniel, R. C., et al., Effects of High Burnup on Zircaloy-Clad, Bulk UO2, Plate Fuel Element Samples, WAPD-263, September, 1962.
3. Crystal River Quality Assurance Program Manual (QAPM).

END-OF-CHAPTER

2. SITE AND ENVIRONMENT

2.1 SUMMARY

The site is located on the Gulf of Mexico, 70 miles north of Tampa, Florida as shown in Figure 2-1.

Dilution flow for liquid releases is drawn from and returned to the Gulf of Mexico using present intake and discharge canal.

The Nuclear Regulatory Commission approved and issued a Partial Site Release on January 2, 2020 reducing the originally licensed 4738-acre site, known as the Owner Controlled Area, to an 884-acre site, referred to now as the Controlled Area (Reference 2 and Reference 3). Figure 2-2 shows the historical Owner Controlled Area and the NRC approved Controlled Area.

The site region is predominantly agricultural in nature.

2.2 SITE AND ADJACENT AREAS

2.2.1 SITE LOCATION AND TOPOGRAPHY

The property wholly owned by DEF and controlled by ADP CR3 (herein referred to as the "site") is located in the northwestern portion of Citrus County, State of Florida, and lies either wholly or partly in Sections 28, 29, 31, 32, and 33, Township 17S, Range 16E.

This site location is approximately 7½ miles NW of Crystal River, and 70 miles N of Tampa as shown in Figure 2-1.

CR3 is located at latitude 28° 57' 25.87"N and longitude 82° 41' 55.95" W.

Situated between the mouths of the Withlacoochee and Crystal rivers, the site is primarily an industrial site.

Topographic features and an aerial photograph of the site is shown in Figure 2-2.

2.2.2 SITE OWNERSHIP

The Crystal River site consists of 884 acres owned by DEF and controlled by ADP CR3. This Controlled Area, its boundaries and the immediate adjacent areas to the plant site, is indicated in Figure 2-2.

Legal Description of the Controlled Area:

A parcel of land lying and being in Sections 28, 29, 31, 32, and 33, Township 17 South, Range 16 East, Citrus County, Florida, being more particularly described as follows:

COMMENCE at a point marking the Southwest corner of the Southwest 1/4 of Section 28, Township 17 South, Range 16 East, Citrus County, Florida; thence coincident with the West boundary of the Southwest 1/4 of said Section 28, N 00°39'12" W a distance of 2647.62 feet to the POINT OF BEGINNING; thence deporting said West boundary, S 89°28'02" E a distance of 5264.62 feet; thence S 00°36'50" E a distance of 2883.83 feet; thence S 59°19'37" W a distance of 72.41 feet; thence S 09°15'51" W a distance of 296.31 feet; thence S 86°56'55" E a distance of 69.64 feet; thence S 00°11'38" W a distance of 63.17 feet to a point coincident with a non-tangent curve, concave Westerly, said curve having a radius of 173.55 feet, a delta angle of 11°58'02", and being subtended by a chord bearing of S 05°29'52" E for a distance of 36.18 feet; thence coincident with the arc of said curve for a distance of 36.25 feet; thence S 00°29'09" W a distance of 44.95 feet to a point coincident with a tangent curve, concave Westerly, said curve having a radius of 126.61 feet, a delta angle of 30°43'23", and being subtended by a chord bearing of S 15°50'51" W for a distance of 67.08 feet; thence coincident with the arc of said curve for a distance of 67.89 feet; thence S 31°12'32" W a distance of 39.80 feet to a point coincident with a tangent curve, concave Easterly, said curve having a radius of 154.80 feet, a delta angle of 26°39'08", and being subtended by a chord bearing of S 17°52'58" W for a distance of 71.36 feet; thence coincident with the arc of said curve for a distance of 72.01 feet; thence S 04°33'24" W a distance of 420.60 feet to a point coincident with a line

being 60.00 feet South of and parallel with the main line of a set of railroad tracks; thence coincident with said parallel line, N 89°43'29" W a distance of 1450.27 feet to a point marking the intersection of a line being 60.00 feet South of and parallel with the main line of said railroad tracks with a line being 60.00 feet Southerly of and parallel with a spur line of said railroad tracks, said point also being a point coincident with a tangent curve, concave Southerly, said curve having a radius of 499.40 feet, a delta angle of 45°02'15", and being subtended by a chord bearing of S 67°45'24" W for a distance of 382.52 feet; thence deporting said parallel line with the main line of said railroad tracks, coincident with said line being 60.00 feet Southerly of and parallel with the spur line of said railroad tracks, also being coincident with the arc of said curve for a distance of 392.55 feet; thence continue coincident with said parallel line being 60.00 feet Southerly of said spur line for the following two (2) courses: 1) S 45°14'17" W a distance of 690.75 feet to a point coincident with a tangent curve, concave Southeasterly, said curve having a radius of 1366.79 feet, a delta angle of 10°55'22", and being subtended by a chord bearing of S 39°46'36" W for a distance of 260.17 feet; 2) thence coincident with the arc of said curve for a distance of 260.56 feet; thence deporting said parallel line, S 34°23'36" E a distance of 10.70 feet; thence S 19°56'53" W a distance of 215.96 feet; thence S 73°48'31" W a distance of 31.96 feet to a point coincident with the aforesaid line being 60.00 feet Southerly of and parallel with the spur line of said railroad tracks; thence coincident with said parallel line for the following two (2) courses: 1) S 15°18'52" W a distance of 747.55 feet to a point coincident with a tangent curve, concave Northerly, said curve having a radius of 632.86 feet, a delta angle of 118°31'38", and being subtended by a chord bearing of S 74°34'42" W for a distance of 1087.92 feet; 2) thence coincident with the arc of said curve for a distance of 1309.19 feet; thence departing said parallel line, N 46°09'29" W a distance of 103.99 feet; thence S 74°47'29" W a distance of 1320.58 feet; thence S 84°09'04" W a distance of 183.83 feet; thence S 89°04'50" W a distance of 351.67 feet; thence N 41°30'58" W a distance of 188.25 feet; thence N 71°52'09" W a distance of 383.16 feet; thence N 06°43'16" W a distance of 373.76 feet; thence N 63°03'04" W a distance of 134.93 feet; thence N 01°53'57" E a distance of 93.81 feet; thence N 15°16'27" E a distance of 22.75 feet; thence N 80°12'56" W a distance of 61.09 feet; thence N 42°00'11" W a distance of 182.57 feet; thence N 42°03'09" W a distance of 109.07 feet; thence N 42°07'09" W a distance of 109.06 feet; thence N 42°57'43" W a distance of 39.62 feet; thence N 47°46'52" W a distance of 39.18 feet; thence N 52°54'06" W a distance of 39.57 feet; thence N 57°45'59" W a distance of 39.14 feet; thence N 69°59'27" W a distance of 20.92 feet; thence S 77°09'18" W a distance of 5145.53 feet; thence N 05°04'29" W a distance of 430.25 feet; thence N 77°33'22" E a distance of 3944.20 feet; thence N 19°57'31" W a distance of 220.80 feet; thence N 19°03'26" W a distance of 939.21 feet; thence N 02°07'23" E a distance of 35.66 feet; thence N 88°16'26" W a distance of 3639.80 feet; thence N 00°00'00" W a distance of 345.49 feet; thence S 88°28'53" E a distance of 1461.51 feet; thence S 85°20'23" E a distance of 1461.50 feet; thence N 02°45'30" E a distance of 45.13 feet; thence N 40°00'37" E a distance of 132.68 feet; thence S 86°17'04" E a distance of 245.38 feet; thence S 86°02'02" E a distance of 607.43 feet; thence N 52°55'57" E a distance of 45.67 feet; thence S 86°01'46" E a distance of 122.99 feet; thence S 42°53'12" E a distance of 46.23 feet; thence S 85°57'35" E a distance of 230.08 feet; thence N 53°42'27" E a distance of 109.55 feet; thence N 80°53'44" E a distance of 41.36 feet; thence N 80°30'02" E a distance of 50.82 feet; thence N 82°13'46" E a distance of 30.90 feet; thence N 84°47'47" E a distance of 27.24 feet; thence N 88°43'56" E a distance of 39.40 feet; thence S 88°37'22" E a distance of 68.16 feet; thence S 86°58'29" E a distance of 78.13 feet; thence S 85°58'08" E a distance of 86.72 feet; thence N 60°01'50" E a distance of 23.49 feet; thence N 87°48'16" E a distance of 85.49 feet; thence S 86°54'36" E a distance of 65.09 feet; thence N 00°59'12" E a distance of 735.00 feet; thence S 89°51'16" E a distance of 1741.39 feet; thence N 01°19'56" W a distance of 1775.85 feet; thence S 89°55'19" W a distance of 303.10 feet; thence N 00°19'41" E a distance of 917.60 feet; thence S 89°28'02" E a distance of 490.19 feet to the POINT OF BEGINNING.

Containing an area of 38,489,493.36 square feet, 883.597 acres, more or less.

There are no public access roads to areas adjacent to the plant site except at the plant access road. Approximately four miles east of the plant, a dirt road crosses the site access road. The north and south site boundaries are bordered by woods and swamps and are generally inaccessible. The Crystal River is located due south of the site and is used for commercial fishing and pleasure craft. Directly west of the plant is the Gulf of Mexico, from which the Crystal River plant site historically received its condenser cooling water. Fishing and pleasure craft have unrestricted access to the Gulf waters. The Crystal River site property extends to the Gulf of Mexico. DEF and ADP CR3 have no legal rights to any appurtenant structures which extend into the Gulf beyond the bulkhead line described previously. Small craft are prevented from entering the discharge canal by a blockade at the bulkhead line. This blockade was installed for safety concerns due to increased water turbulence caused by the mixing of reintroduced water to the canal from the helper cooling towers.

2.2.3 SITE ACTIVITY

Duke Energy Florida has four operating fossil fuel generating units (Unit 4, Unit 5, and two Combined Cycle units) at the plant site.

The presence of industry, transportation, or operations in the vicinity of the site does not pose any potentially significant effects on the safe operation of the nuclear facility. Since CR3 has permanently shutdown and removed spent fuel from the reactor, the risks of industry, transportation, or operations in the vicinity of CR3 are significantly reduced.

2.2.4 MAJOR TRANSPORTATION ROUTES, WATERWAYS, AND AIRPORTS

The only major road is U.S. Highway 19, a four-lane divided highway through Citrus County. U.S. Highway 19 links St. Petersburg with Tallahassee. A railroad spur off the Seaboard Coast Line Railroad serves the ADP CR3/DEF site. Boat landings are few, small, and scattered, although the Intercoastal Waterway passes within 10 miles of the site. A canal has been constructed between the Gulf and the ADP CR3/DEF plant site for delivery of coal by barges and intake of cooling water.

No new major highways are expected to pass through the area. However, there will be an increase in local roads as new subdivisions and mobile home courts are constructed in the southern part of the area.

The major waterways are:

a. Crystal River Entrance Channel

b. Cross Florida Barge Canal (only a western section has been constructed)

Presently, there is only one airfield and no known missile bases in the area. The airfield is located in a southeasterly direction about eight miles from the plant site. At present, there are no known plans to rebuild any airports within the five mile radius of the plant.

The present airfield has one turf runway, 2,666 feet in length, oriented in a north-south direction and one paved runway, 4,557 feet in length, oriented in an east-west direction. The east-west runway is the one used by most small craft landing and taking off.

2.3 METEOROLOGY

2.3.1 METEOROLOGICAL INPUT

There is no credible accident that can result in a radiological release exceeding EPA Protective Action Guidelines (References 6, 7 and 8). Therefore, there is no requirement or capability for real time off site dose assessment or to collect real time meteorological data. Nevertheless, if a need arises, current meteorological data can be obtained from local and national weather services.

Updated annual average atmospheric dispersion and deposition factors (X/Q and D/Q) were calculated for CR3 using five years of data (Reference 4) to supplement 1976 calculations, which were based on one year of data (Reference 5). These results provide a range of values to account for multiple release points, the controlled area boundary (References 2 and 3), nearby residences, and nearby work locations in the unrestricted area immediately surrounding the controlled area.

Short term atmospheric dispersion factors (X/Q) have also been calculated using the same 5-year dataset (Reference 4) used for the annual average factors. These factors were developed to aid in the assessment of short term abnormal radioactive releases. A range of values have been calculated to account for different release locations with respect to the controlled area boundary.

2.4 HYDROLOGY

2.4.1 CHARACTERISTICS OF STREAMS IN VICINITY OF THE SITE

The major streams in the general vicinity of the site are the Withlacoochee River and the Crystal River. The Withlacoochee River is the major stream, having a drainage area at its entrance into the Gulf of Mexico of approximately 2,000 square miles. The discharge of the Withlacoochee River due to rain runoff is augmented by a base flow of groundwater runoff and artesian spring discharges. The Crystal River is much smaller than the Withlacoochee River, with its major discharge consisting of artesian spring discharges.

The plant site is located approximately 3.8 miles south of the mouth of the Withlacoochee River and about the same distance north of the mouth of the Crystal River. The Cross-Florida Barge Canal, which intersects with the Withlacoochee River inland, meets the Gulf about one mile southeast of the mouth of the Withlacoochee River and two miles northwest of the site. The average flow from the Withlacoochee River drainage basin, a portion of which enters the Gulf via the Cross-Florida Barge Canal, is approximately 1,820 cfs, with a maximum and minimum flow of 9,130 cfs and 830 cfs, respectively. The average flow of the Crystal River is approximately 600 cfs. The natural stream flows in the vicinity of the plant site have a high mineral content.

2.4.2 MAXIMUM HURRICANE SURGE LEVEL

For Class III SSCs, the flood level is shown on FEMA's Flood Insurance Rate Maps. For CR3, the maximum flood height is EL 107' (plant datum), as evaluated in EC 299162.

2.5 REFERENCES

1. EC 299162, Revise Flood Design Basis
2. 3F0119-01, CR3 to NRC Partial Site Release submittal, including site boundaries and surveys
3. 3N20-001, NRC to CR3 Partial Site Release approval
4. Calculation N18-0003, “Calculation of X/Q & D/Q for CR3”
5. NUS Corporation Report: NUS-1753, “Crystal River Unit 3 Input to Revise FSAR Incorporating Meteorological Data, January 1, 1975 – December 31, 1975”
6. ISFSI Only Emergency Plan
7. License Amendment Request #322, Revision 0, Independent Spent Fuel Storage Installation (ISFSI)-Only Emergency Plan, and ISFSI-Only Emergency Action Level Bases Manual, for the CR-3 SAFSTOR Period with Spent Fuel on Site (May 26, 2016)
8. Safety Evaluation Input For The Crystal River Unit 3 Independent Spent Fuel Storage Installation Only Emergency Plan (CAC NO. L53129) (August 12, 2016)

FIGURE 2-1, GENERAL AREA MAP

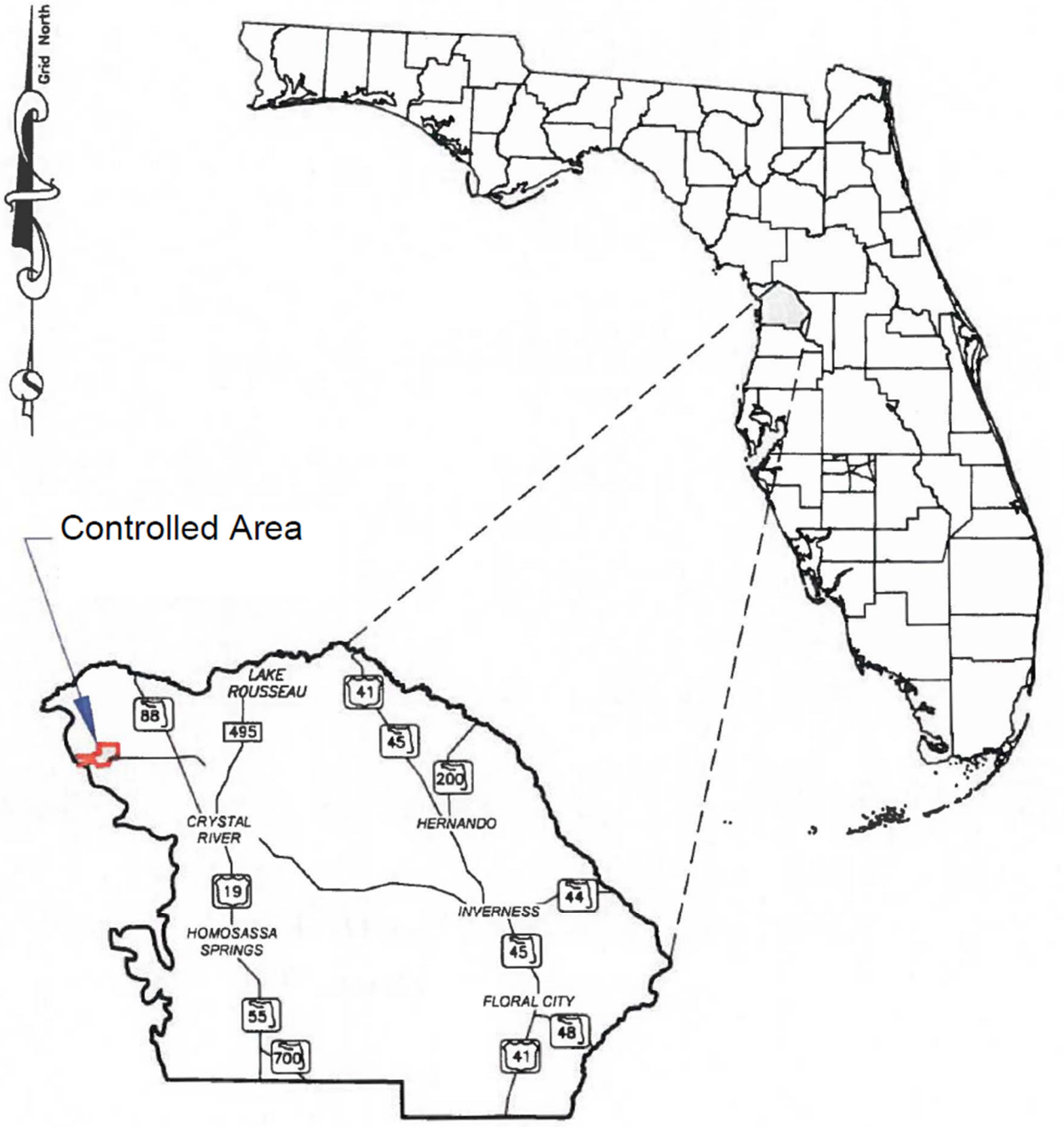
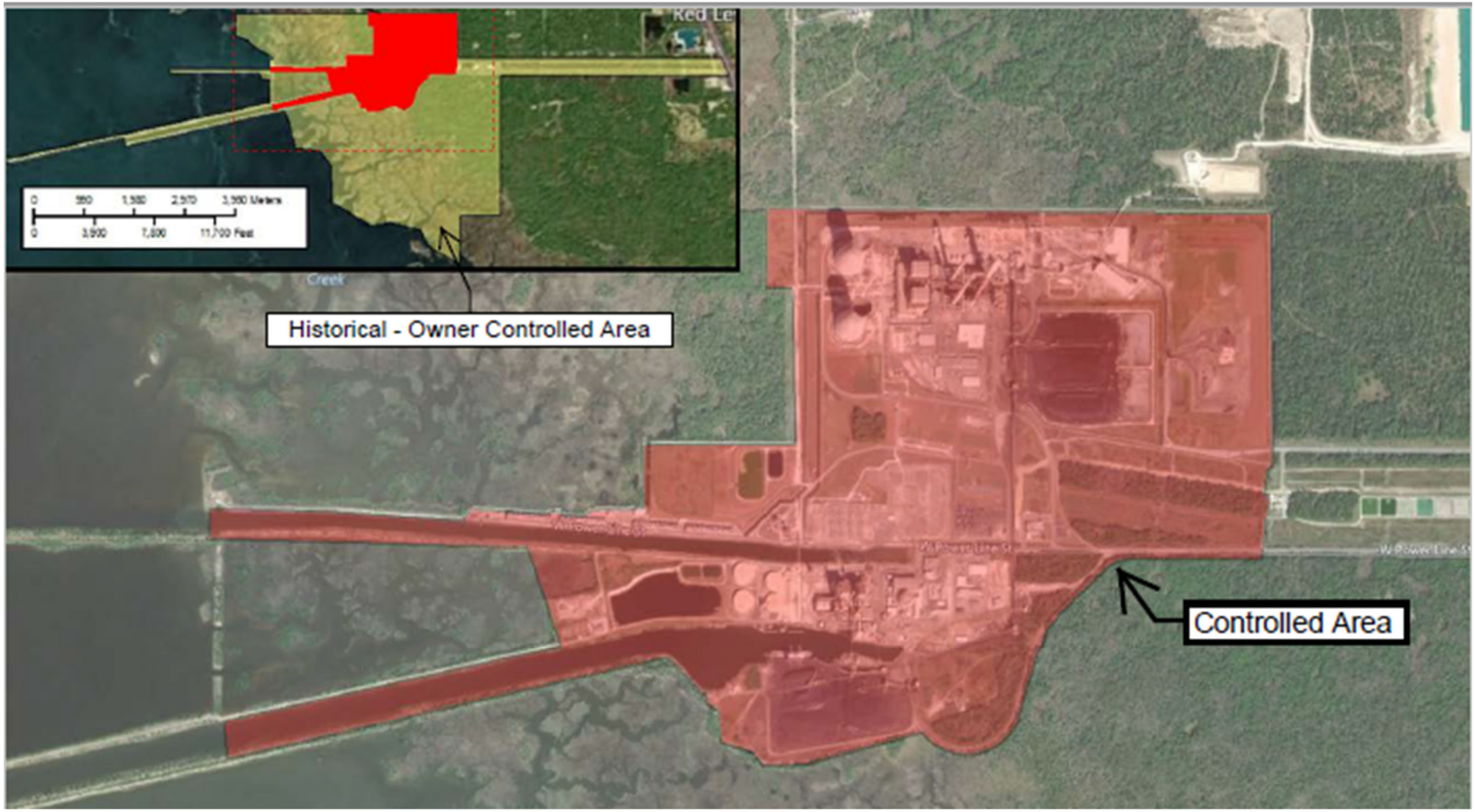


FIGURE 2-2, CR3 CONTROLLED AREA



END-OF-CHAPTER

3. SYSTEMS

On April 1, 2020, the NRC approved transfer of CR3 from DEF to ADP CR3 to commence decontamination, dismantlement and demolition (ADAMS Accession No. ML20069A023). On October 1, 2020 closing took place and ADP CR3 became the Facility Licensee and the updated PSDAR became effective changing the plant decommissioning strategy from SAFSTOR to DECON.

All of the plant Systems, Subsystems and Components (SSCs) that were once safety related are now abandoned and able to be dismantled. There is no longer any Safety Analysis described in this DSAR related to the reactor or steam plant that once was an operating plant. All the spent fuel was removed from the plant and is in dry storage on the ISFSI.

END-OF-CHAPTER

4. RADIOACTIVE WASTE & RADIATION PROTECTION

4.1 RADIOACTIVE WASTE

Radioactive waste is controlled to assure compliance with applicable regulations as specified in the Offsite Dose Calculation Manual (ODCM). ODCM limits have their bases in 10 CFR 20, 10 CFR 50 Appendix I, and 40 CFR 190.

4.1.1 LIQUID WASTE

Liquid waste is collected, sampled, managed, and released using the liquid management equipment, or similar equipment. All releases of liquid effluent to the environment are under strict administrative control. Liquid effluent releases are in the batch mode, and a numbered discharge permit is issued for each batch release. Details of the sampling and analysis criteria are given in the ODCM and applicable plant procedures.

4.1.2 SOLID WASTE

Solid Radioactive wastes are collected and processed on or off site and shipped to a licensed/permitted burial site for disposal. Solid wastes are packaged in containers which conform to DOT requirements (49 CFR) for transport to a licensed disposal or treatment facility. The total curie content and major radionuclide composition by waste type are reported in the Radioactive Effluent Release Report required pursuant to 10 CFR 50.36a.

4.2 RADIATION PROTECTION

4.2.1 OFF-SITE DOSE CALCULATION MANUAL

The ODCM provides the information and methodologies used to evaluate the impact of radiological liquid and gaseous effluent discharged from the plant. The ODCM is used to demonstrate that the plant complies with the requirements of 40 CFR 190, 10 CFR 20, and the dose guidelines of 10 CFR 50, Appendix I.

4.2.2 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

A program is required to monitor the radiation and radionuclides in the environs of the plant. The program provides (1) representative measurements of radioactivity in the highest potential exposure pathways, and (2) verification of the accuracy of the effluent monitoring program and modeling of environmental pathways. The program is (1) contained in the ODCM, (2) conforms to the guidance of 10 CFR 50, Appendix I, and (3) includes the following:

a. Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM.

b. A Land Use Census to ensure that changes in the use of areas at and beyond the site boundary are identified and that modifications to the monitoring are made if required by the results of this census, and

c. Participation in an Interlaboratory Comparison Program to ensure that independent checks on the precision and accuracy of the measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring.

4.2.2.1 Summary of Estimated Doses

Estimates of the maximum whole body dose and the maximum organ dose to an individual member of the public at or beyond the site boundary (i.e., in the unrestricted area) that would be received as a result of the release of liquid and gaseous effluents, and direct radiation (e.g., ISFSI) dose estimates, can be found in the Annual Radioactive Effluent Release Reports submitted to the NRC.

4.2.3 RADIOACTIVE WASTE HANDLING EVENT

A radioactive waste handling event has been postulated to be the limiting event for decommissioning activities at CR3. The event is postulated to be the airborne dispersal of radioactive particulates upon dropping of the middle segment of the reactor vessel inside the reactor building. This event is one of six hypothetical events involving the movement of reactor vessel components and associated wastes (Ref. Orano CALC-3024546, revision 1).

Table 4-1 contains the key design inputs for calculation of dose due to the limiting event. The results of the event analysis determined that a receptor at the closest point on the controlled area boundary would receive a dose of < 9 millirem TEDE. This TEDE dose is bounded by the dose from the radioactive waste event of record during transition to an ISFSI-Only Emergency Plan (Ref. LRP21-01, CR3 Radiological Accident Dose Limits).

4.3 HEALTH PHYSICS

4.3.1 PROGRAM DESCRIPTION

CR3's Radiation Protection Program resides within the Health Physics and Radiation Safety Procedures. These procedures describe the programmatic content and operating philosophy of the Radiation Protection Program. The Radiation Protection Department is responsible for the administration of these procedures.

The Radiation Protection Program is based upon a Risk versus Benefit ALARA methodology and is designed to prevent the occurrence of non-stochastic health effects and to minimize the probability of occurrence of stochastic health effects within three distinct populations: individual radiation workers, the workforce, and members of the general public.

4.3.2 TRAINING (TRAINING AND HEALTH PHYSICS)

The Radiation Protection Department is responsible for orientation and training of personnel in radiation protection principles and procedures to maintain exposures As Low As Reasonably Achievable (ALARA).

4.3.3 TOTAL RISK ASSESSMENT

The health and safety of employees is of paramount importance to ADP CR3. Therefore, before prescribing the use of any personal protective measures, all of the risk factors associated with the task to be performed will be evaluated and the protective measures chosen will be those that offer the best protection against the greatest risk present. To the extent practical, industrial, environmental and radiological risks will be eliminated in the planning phase of the work control process. Personnel monitoring devices, protective clothing, portable shielding and respiratory protection equipment are available for use when conditions warrant.

4.3.4 ACCESS CONTROL AND THE RWP (ALL ORGANIZATIONS)

Only trained/qualified individuals are granted unescorted access into a Radiation Controlled Area (RCA). The Radiation Work Permit (RWP) is the mechanism used to authorize and document the requirements for entry into an RCA. Personnel entering an RCA are required to read and understand the information presented by the RWP authorizing their entry.

A prospective assessment is performed for each category of radiation worker and is reviewed on an annual basis during the yearly Radiation Protection Program self-assessment. This prospective assessment and the requirements specified on the RWP will determine the need for and level of personnel monitoring required for the various work activities to be performed inside of the Restricted Area.

An alternative to access control to High Radiation Areas may be provided as follows:
In lieu of the "control device" or "alarm signal" required by paragraph 20.1601(a) of 10 CFR 20, a High Radiation Area in which the intensity of radiation is greater than 100 mrem/hr but less than 1000 mrem/hr shall be barricaded and conspicuously posted as a High Radiation Area and entrance thereto shall be controlled by issuance of a Radiation Work Permit and any individual or group of individuals permitted to enter such areas shall be provided with one or more of the following:

a. A radiation monitoring device which continuously indicates the radiation dose rate in the area, or

b. An integrating alarming dosimeter which alarms when a preset integrated dose or dose rate is received. Entry into such areas with this alarming dosimeter may be made after the dose rate levels in the area have been established and personnel have been made knowledgeable of them, or

c. An individual qualified in Health Physics Procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over activities in the area and who performs periodic radiation surveillance at the frequency specified by the Radiation Work Permit.

This provision is addressed in Permanently Defueled Technical Specification 5.8 "High Radiation Area" and must be maintained as stated unless prior NRC approval is granted in accordance with 10 CFR 50.90 and 10 CFR 20.1601(c).

4.3.5 HEALTH PHYSICS RESOURCES

The necessary manpower, instrumentation and related equipment needed to support the Radiation Protection Program as described in the appropriate procedures will be maintained. Instrumentation and equipment are available to sample for the various forms of radioactive materials (i.e., gaseous, liquid and solid) and provide quantitative and qualitative data as necessary. The instrumentation and equipment is periodically checked and calibrated to assure quality performance.

4.3.6 RELATED MEDICAL PROGRAMS

Medical qualifications and health physics bioassay requirements must be met to enter CR3's Respiratory Protection Program. Bioassay services are provided on a routine basis and are available based upon recommendations received by either Health Services or Health Physics personnel. Any employee may request bioassay services and their results at any time. Personnel in the respiratory protection program must pass initial and annual physical requirements per 29 CFR 1910.134.

TABLE 4-1, ASSUMPTIONS FOR RADIOACTIVE WASTE HANDLING EVENT

Input Assumption	Basis
1. Reactor Vessel Segment Source Activity: 3.56E4 Ci due to activation, and 2.48E1 Ci due to contamination. 10% of activation and 100% of contamination are assumed potentially releasable.	1. Orano CALC-DDOPS.CR3-00002-001, Table 7-21 Orano CALC-3024546-001, section 4.2 for discussion on percentages available for releases (damage ratios).
2. χ/Q: 3.56E-4 sec/m^3	2. Calculation N18-0003, Revision 2
3. Breathing Rate: 3.5E-04 m^3/s	3. Regulatory Guide 1.183
4. Internal dose conversion factors	4. Federal Guidance Report 11
5. External dose conversion factors	5. Federal Guidance Report 12
6. Source Term Fraction: 1E-4, except for H-3 which is 5E-2	6. Orano CALC-3024546-001, sections 4.3 and 4.4 for discussion on inputs into the source term fraction (airborne release fraction and respirable fraction). NUREG/CR-6410, section 3.2.5.2 as basis for modified source term fraction calculation. DOE Handbook, DOE-HDBK-3010-94, Rev. 1 for release and respirable fractions. 10 CFR 30.72, Schedule C for Tritium release fraction.

END-OF-CHAPTER

5. CONDUCT OF OPERATIONS

5.1 ORGANIZATION AND RESPONSIBILITY

The organization responsible for the CR3 plant is headed by the ADP CR3 Management. Additional description of the plant and corporate organization is provided in the Quality Assurance Program Manual.

CR3 personnel have the combination of education, skill, and experience commensurate with their level of responsibility. These qualifications provide reasonable assurance that decisions and actions during all conditions are such that the plant is maintained in a safe manner. The qualifications of facility managerial, supervisory, technical support and technician personnel meet the requirements set forth in the Crystal River Quality Assurance Program Manual (QAPM).

5.2 TRAINING

ADP CR3 has implemented a training program designed to indoctrinate personnel in the administrative and technical aspects of the plant. Programs are conducted to train site personnel. Key personnel receive on-site classroom or guided self-study and on-the-job training. The training program ensures the monitoring, handling and storage of nuclear fuel is performed in a manner consistent with ensuring the health and safety of the public. Appropriate plant personnel receive instruction in emergency plan and radiation protection procedures. Specialized training in specific areas conducted by the equipment manufacturers or other vendors is utilized as necessary. Training on a continuing basis is used to maintain a high level of proficiency in the staff.

5.3 PHYSICAL SECURITY (ISFSI-ONLY SECURITY PLAN)

ADP CR3 has developed and submitted to the NRC the ISFSI-Only Security Plan. Pursuant to 10 CFR 2.390(d), the plan has been determined to contain proprietary and/or safeguards information and shall be withheld from public disclosure. For the latest revisions of the Plans, contact CR3 Security or Licensing.

5.4 EMERGENCY PLAN (ISFSI-ONLY EMERGENCY PLAN)

ADP CR3 has developed the ISFSI-Only Emergency Plan to describe the elements of an integrated preparedness program to respond to potential emergencies at CR3. In the event of an emergency at CR3, actions are required to identify and assess the nature of the emergency and bring it under control in a manner that protects the health and safety of plant personnel.

The ISFSI-Only Emergency Plan describes the organization and responsibilities of ADP CR3 for implementing emergency measures. It describes interfaces with Federal, State of Florida, and Citrus County organizations, to be notified in the event of an emergency and may provide, or be requested to provide, assistance.

CR3 is licensed under the requirements of 10 CFR 50, "Domestic Licensing of Production and Utilization Facilities," and 10 CFR 72, “Licensing Requirements For The Independent Storage of Spent Nuclear Fuel, High Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste.” Consistent with the requirements of 10 CFR 50, this Plan is based upon the requirements of 10 CFR 50, Section 50.47(b) and Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," as applicable to CR3 in its permanently shutdown and defueled status. Sections of this Plan address the standards delineated in 10 CFR 50.47(b)(1) through (16). In addition, the Plan is also intended to meet appropriate State of Florida and U.S. Nuclear Regulatory Commission (NRC) regulations in accordance with ADP CR3's Operating License (No. DPR-72).

Because the analyses of the credible design basis events and consequences indicates there are no postulated accidents that would result in off-site dose consequences that require off-site emergency planning, emergencies are divided into two classifications: 1) Notification of an Unusual Event (Unusual Event) and 2) Alert. This classification scheme has been discussed and agreed upon with responsible off-site organizations and is compatible with the State Plan.

ADP CR3 is responsible for planning and implementing emergency measures within the CR3 CONTROLLED AREA. This Plan is provided to meet that responsibility. To carry out specific emergency measures discussed in the Plan, detailed implementing procedures are established and maintained. The Plan provides a listing of the implementing procedures.

In addition to the description of activities and steps that can be implemented during a potential emergency, this Plan provides a general description of the steps taken to recover from an emergency situation. It also describes the training, exercises, planning, and coordination appropriate to maintain an adequate level of emergency preparedness.

5.5 FIRE PROTECTION PROGRAM

The Crystal River Fire Protection Program meets the objectives of 10 CFR 50.48(f). The Fire Protection Program is described fully in the Plant Fire Protection Plan and the ISFSI Fire Protection Plan.

5.6 FACILITY PROCEDURES

Facility procedures provide detailed written instructions designed to govern the normal and off-normal conditions under which the plant is maintained. These procedures are in accordance with the Quality Assurance Program described in the QAPM.

Facility procedures are written, reviewed, and implemented by the facility staff in accordance with the QAPM. These procedures provide instructions for the safe operation, control, and maintenance of the facility and furnish documentation of actions taken.

The following procedure categories are:

a. Administrative Instructions

b. Operations and Maintenance Procedures

c. Emergency Plan and Implementing Procedures

d. Radiation Protection Procedures

e. Surveillance Procedures

f. Special Nuclear Materials Procedures

g. Security Procedures

h. Quality Assurance Procedures

5.7 RECORDS

5.7.1 OPERATIONAL AND MAINTENANCE RECORDS

The following records which implement License Basis Document requirements for plant or ISFSI operations will be maintained. The list below in not all inclusive.

- Completed radiological liquid radiological release permits
- Surveillances implementing Fire Protection Plan system requirements
- ISFSI Records implementing NUHOMS technical surveillance requirements
- Emergency Plan requirements, etc.

5.7.2 ADMINISTRATIVE RECORDS

The following is the responsibility of the Manager, Radiation Protection:

Investigation and reporting of abnormalities and corrective action taken including, but not limited to, the following:

a. Personnel overexposure
b. Loss or theft of licensed radioactive material

Corrective action will be taken immediately.

5.7.3 DELETED

5.7.4 HEALTH PHYSICS RECORDS

The Manager, Radiation Protection and Chemistry maintains the following Health Physics records:

5.7.4.1 Personnel Exposure

The Supervisor, Nuclear Radiation Protection maintains the following:

a. Dosimetry records (monthly or more frequently)
b. Radio bioassay records (as deemed necessary)
c. Records of radiation exposure history and current exposure status (as required by 10 CFR 20)

5.7.4.2 Radiological Surveys

The Supervisor, Nuclear Radiation Protection is responsible for routine radiological surveys and job-specific radiological surveys.

5.7.4.3 Survey Instrument Calibration

The Supervisor, Nuclear Radiation Protection maintains all HP survey meters in accordance with 10 CFR 20.2103.

5.7.4.4 Radiological Monitoring and Waste Disposal

The Manager, Radiation Protection and Chemistry is responsible for the following:

a. Liquid waste discharged
b. Gaseous activity released
c. Monitoring reports

5.7.4.5 Instrumentation Calibration

The Manager, Radiation Protection and Chemistry maintains all environmental monitors.

5.7.4.6 Shipping, Receiving and Inventory of Radioactive Material

The Manager, Radiation Protection and Chemistry is responsible for the following:

a. Records in sufficient detail to satisfy the appropriate sections of 10 CFR 20, 10 CFR 70, 10 CFR 71 and 49 CFR 173.
b. Solid radioactive waste shipped.

5.7.5 OTHER RECORDS

5.7.5.1 Special Nuclear Material Inventory

The Site SNM Custodian is responsible for records in sufficient detail to satisfy the requirements of 10 CFR 70.

5.8 ADMINISTRATIVE CONTROL

Administrative controls are established to ensure plant operations, maintenance tests, and emergency responses are performed in accordance with reviewed and approved procedures. The Nuclear Executive has the responsibility and authority to operate the facility within the limits of the administrative controls.

5.8.1 INDEPENDENT SAFETY REVIEW

The responsibilities and authorities of the Independent Safety Review are described in the approved Quality Assurance Program Manual and implementing procedures.

END-OF-CHAPTER

ADP CR3, LLC

DOCKET NUMBER 50-302 / 72-1035
LICENSE NUMBER DPR-72

ATTACHMENT 4

CR3-QAPM
REVISION 3

CRYSTAL RIVER
QUALITY ASSURANCE PROGRAM MANUAL
(CR3-QAPM)

Revision 3

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Quality Program - Policy Statement

ADP CR3, LLC (ADP CR3) maintains the Crystal River Unit 3 (CR3) in a manner that will ensure the health and safety of the public and workers. The facility shall be maintained in compliance with the requirements of the Code of Federal Regulations, the applicable Nuclear Regulatory Commission (NRC) Facility Operating License, and applicable laws and regulations of the state and local governments.

The Quality Assurance Program Manual (QAPM) complies with 10 CFR 50 Appendix B and includes the description in the following sub-sections and the associated implementing documents that provide for control of activities that affect the quality of SSCs classified as important-to-safety (ITS) to satisfy the requirements of 10 CFR 71 Subpart H and 10 CFR 72 Subpart G.

The QAPM contained here-in is the top-level policy document that establishes the manner in which quality is to be achieved and presents our overall philosophy regarding achievement and assurance of quality. Implementing documents assign more detailed responsibilities and requirements and define the organizational interfaces involved in conducting activities within the scope of the QAPM. Compliance with the QAPM and implementing documents is mandatory for personnel directly or indirectly associated with implementation of the QAPM.

Responsibility for developing, implementing, and verifying execution of the QAPM is delegated to the Management position that is responsible for overall spent fuel safety and authority for developing and verifying execution of the program to the quality assurance manager.

The QAPM is applicable to site activities that support ITS SSCs and associated activities. With the transfer of all spent nuclear fuel to the Independent Spent Fuel Storage Installation (ISFSI) a significant change to the facility license basis occurred. This change to the license basis resulted in the reduction of number of SSCs and activities controlled under QAPM requirements. The only remaining SSCs and activities that continue to be designated as ITS are those directly associated with the storage of spent nuclear fuel at the ISFSI and for selected radioactive material transportation packages controlled under 10 CFR 71 (i.e., Type B Packages). These radioactive material transportation package license basis requirements are applicable to both ISFSI and decommissioning activities. The fuel is stored in canisters that are approved for both transportation under 10 CFR 71 and storage under 10 CFR 72. Type B Packages will also be needed to transport some selected radioactive material. The applicable QAPM controls for these services are applied in a graded approach based on their importance to safety. Although not a commitment, some QAPM controls which are developed to implement ITS activities are also applied in a graded approach to facility decommissioning activities, such as those for organization, document control, procedures, corrective action and records. This strategy is utilized to ensure quality considerations are applied to decommissioning of the facility.

1.0 ORGANIZATION

The organizational structure responsible for implementation of the QAPM is described below. The organizational structure consists of corporate and ADP CR3 functions. The specific organization titles for the quality assurance functions described are identified in procedures. These functional responsibilities include other responsibilities that are not directly related to ITS activities but are necessary to support the decommissioning of the facility. The authority to accomplish the quality assurance functions described is delegated to the incumbent's staff as necessary to fulfill the identified responsibility.

1.1 Corporate Organization

1. The ADP CR3 president is responsible for overall executive direction and guidance for the corporation as well as promulgates corporate policy through the company's senior management staff. Responsibility for developing, implementing, and verifying execution of the QAPM is delegated to the nuclear executive. The authority for developing and verifying execution of the program is delegated to the management position responsible for quality assurance.

2. The nuclear executive is responsible for providing top-level direction for the safe management of CR3's nuclear site. This executive provides guidance with regards to the company quality assurance policy. The results of Independent Management Assessments are reported to this executive. The nuclear executive establishes the policies, goals, and objectives of the quality assurance policy and ensures guidance and interpretation for implementing the company quality assurance policy are provided. The management position responsible for nuclear oversight is the individual responsible for ensuring the implementation of the quality assurance program is in accordance with regulatory requirements.

1.2 CR3 Site Organization

The following site management positions describe the typical site QAPM functional responsibilities, which may be delegated to others as established in this document. These functions may be performed by the same individuals and may report through an additional layer of management but shall maintain sufficient authority and organizational freedom to implement the assigned responsibilities.

1. A management position that is responsible for overall spent fuel safety operational activities is accountable for maintaining the facility within the constraints of applicable regulatory requirements and the operating license, including training. Different aspects of these responsibilities may be fulfilled by separate management positions. This management position is responsible for operation of the ISFSI. Examples of this position's responsibilities incudes the development and maintenance of engineering programs, facility design bases, policies, and procedures and for providing engineering services. Other responsibilities include licensing, corrective action program, records management, document control and information technology. The independent safety review function reports to this management position.

2. A management position that is responsible plant side activities including those aspects of ITS implementing activities performed in support of decommissioning.

3. The management position that is responsible for quality assurance has overall authority and responsibility for establishing, controlling, and verifying the implementation and adequacy of the quality assurance program as described in this QAPM. This position has the authority and responsibility to escalate matters directly to the nuclear executive, if necessary.

4. A management position that is responsible for materials, purchasing, and contracts is responsible for procurement, services, receipt, storage, and issue of materials, parts, and components. Different aspects of these responsibilities may be fulfilled by separate site managers.

5. A management position that is responsible for radiation protection and chemistry activities. This management position is responsible for the implementation of the Radiation Protection Program, Radiological Environmental Monitoring Program, Radiological Effluent Controls Program, radioactive waste shipping and Process Control Program activities.

1.3 Independent Review

The Independent Safety Review function and Independent Management Assessments independently review activities to provide additional assurance that CR3 is maintained in accordance with the 10CFR50 License and applicable regulations that address nuclear safety. The independent safety review function is described in Appendix C.

1.4 Responsibility

1. CR3 has the responsibility for the scope and implementation of an effective quality assurance program.

2. CR3 may delegate all or part of the activities of planning, establishing, and implementing the quality assurance program to others, but retains the responsibility for the program's effectiveness.

3. CR3 is responsible for ensuring that the applicable portion(s) of the quality assurance program is properly documented, approved, and implemented (people are trained, and resources are available) before an activity within the scope of the QAPM is undertaken by CR3 or by others.

4. Individual management positions are to ensure that personnel working under their management cognizance are provided the necessary training and resources to accomplish their assigned tasks within the scope of the QAPM.

5. Procedures that implement the QAPM are approved by the management responsible for the applicable quality function. These procedures are to reflect the QAPM and work is to be accomplished in accordance with them.

1.5 Authority

1. When CR3 delegates responsibility for planning, establishing, or implementing any part of the overall QA program, sufficient authority to accomplish the assigned responsibilities is delegated.

2. The management position responsible for quality assurance has the responsibility and the authority to stop unsatisfactory work and control further processing, delivery, installation, or use of non-conforming items or services. Cost and schedule considerations will not override safety considerations.

2.0 QUALITY ASSURANCE PROGRAM

1. The Quality Assurance Program (QAP) for CR3 is described in the QAPM. This QAPM provides control over ITS and selected decommissioning related activities to an extent consistent with their importance to ensure safety and compliance as defined in procedures. The QAPM includes specific monitoring activities which are measured against acceptance criteria in a manner sufficient to provide CR3 management assurance that the ITS activities are performed in an acceptable manner. The CR3 QAPM requirements apply to SSCs designated as ITS as defined in Appendix A. The QAPM is applicable to site activities that support ITS SSCs and associated activities.

2. The QAPM satisfies the requirements of 10 CFR 50 Appendix B Quality Assurance Criteria for Nuclear Power Plants and Fuel Processing Plants, 10CFR71, Subpart H, Quality Assurance for Packaging and Transportation of Radioactive Material, and 10CFR72, Subpart G, Quality Assurance for Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste. Additional regulatory commitments are listed within Appendix A of the QAPM. Implementation of the CR3 QAPM is controlled through separately issued procedures, instructions and drawings. Each organization is responsible for the establishment and implementation of procedures and instructions prescribing the ITS activities for which they are responsible.

3. Important to safety activities shall be accomplished under suitably controlled conditions. Controlled conditions include the use of appropriate equipment; suitable environmental conditions for accomplishing the activity, such as adequate cleanness; and assurance that all prerequisites for the given activity have been satisfied. The QAP takes into account the need for special controls, processes, test equipment, tools, and skills to attain the required quality, and the need for verification of quality by inspection and test.

4. The only remaining SSCs and activities that continue to be designated as ITS are those directly associated with the storage of spent nuclear fuel at the ISFSI and for selected radioactive material transportation packages controlled under 10 CFR 71 (i.e., Type B Packages). These radioactive material transportation package license basis requirements are applicable to both ISFSI and decommissioning activities. The fuel is stored in canisters that are approved for both transportation under 10 CFR 71 and storage under 10 CFR 72. Type B Packages will be also be needed to transport some selected radioactive material and for the storage of greater than class C (GTCC) waste. The applicable QAPM controls for these services are applied in a graded approach based on their importance to safety. Although not a commitment, some QAPM controls which are developed to implement ITS activities are also applied in a graded approach to facility decommissioning activities, such as those for organization, document control, procedures, corrective action and records. This strategy is utilized to ensure quality considerations are applied to decommissioning of the facility.

5. Changes to the QAPM will be implemented in accordance with 10 CFR 50.54(a) and 10 CFR 71.106.

2.1 Program Control and Authority

1. The manager responsible for quality assurance is responsible for ensuring that the applicable portions of the QAPM are properly documented approved and implemented (with trained staff, necessary materials and approved procedures available) before an activity within the scope of the QAPM is executed. Disputes arising between departments or organizations on any QA matter that cannot be resolved at a lower level of management will be referred to the nuclear executive.

2. Additional requirements for specific programs are described in Appendix D, Administrative Controls.

2.2 Personnel Training and Qualifications

1. Individual managers are responsible for ensuring that personnel working under their cognizance are provided with the necessary indoctrination training and resources to accomplish assigned activities which fall under the scope of the QAPM.

2. Members of the CR3 staff (including audit and inspection personnel) shall have the appropriate qualifications necessary to perform their assigned duties defined in implementing procedures. These implementing procedures provide the criteria utilized for determining and assessing appropriate staff qualification. Additionally, Appendix B cites references that stipulate the use of specific industry standards addressing qualifications. Training programs are established and implemented to ensure that personnel achieve and maintain suitable proficiency. Personnel training and qualification records are maintained in accordance with approved procedures.

3. Quality Assurance Lead Auditors are qualified and certified by the manager responsible for quality assurance in accordance with approved procedures. Training methods, minimum experience requirements, and certification practices are in accordance with established procedures and based on criteria set forth in Quality Assurance implementing procedures. Proficiency evaluations are performed and documented as defined in approved procedures.

4. Records of the implementation for staff indoctrination and training, as well as records for audit and inspection personnel qualification shall be maintained in accordance with approved procedures and show the appropriate documentary evidence of training completion.

2.3 Performance/Verification

1. Personnel performing work activities such as design, engineering, procurement, installation, maintenance, modification, operation, and decommissioning are responsible for achieving acceptable quality.
2. Personnel performing independent verification activities are responsible for verifying the achievement of acceptable quality and are different personnel than those who performed the work.
3. Work is accomplished and verified using instructions, procedures, or other appropriate means that are of a detail commensurate with the activity's complexity and importance to safety.
4. Criteria that define acceptable quality are specified, and quality is verified against these criteria.

3.0 DESIGN CONTROL

1. The program will ensure that the activities associated with the design of ITS structures, systems and components and modifications thereto, are executed in a planned, controlled, and orderly manner.
2. The program utilizes the guidance of NUREG/CR-6407 to classify structures, systems and components such that appropriate quality requirements are identified and documented on drawings, component lists, or procurement documents, as applicable.
3. The program includes provisions to control design inputs, processes, outputs, changes, interfaces, records, and organizational interfaces.
4. Design inputs (e.g., performance, conditions of the facility license, quality, and quality verification requirements) shall be correctly translated into design outputs (e.g., specifications, drawings, procedures, and instructions).
5. The final design output shall relate to the design input in sufficient detail to permit verification. The design process shall ensure that materials, parts, equipment and processes are selected and independently verified consistent with their importance to safety to ensure they are suitable for their intended application.
6. Changes to final designs (including field changes and modifications) and dispositions of non-conforming items to either use-as-is or repair shall be subjected to design control measures commensurate with those applied to the original design and approved by the organization that performed the original design or a qualified designee. The original design organizations for the CR3 ISFSI are identified in Appendix A. Subsequent changes to the original design can be made by CR3 as defined in the design control process.
7. Interface controls (internal and external between participating design organizations and across technical disciplines) for the purpose of developing, reviewing, approving, releasing, distributing, and revising design inputs and outputs shall be defined in procedures.

8. Design documentation and records, which provide evidence that the design and design verification process was performed in accordance with the QAP, shall be collected, stored, and maintained in accordance with documented procedures. This documentation includes final design documents, such as drawings, and specifications, and revisions thereto and documentation which identifies the important steps, including sources of design inputs that support the final design.

3.1 Design Verification

1. The program will verify the acceptability of design activities and documents for the design of items. The selection and incorporation of design inputs and processes, outputs and changes are verified.

2. Verification methods include, but are not limited to, design reviews, alternative calculations, and qualification testing. The extent of this verification will be a function of the importance to safety of the item, the complexity of the design, the degree of standardization, the state of the art, and the similarity with previously proven designs.

3. When a test program is used to verify the acceptability of a specific design feature, the test program will demonstrate acceptable performance under conditions that simulate the most adverse design conditions that are expected to be encountered.

4. Independent design verification is to be completed before design outputs are used by other organizations for design work and before they are used to support other activities such as procurement, manufacture, or construction. When this timing cannot be achieved, the unverified portion of the design is to be identified and controlled. In all cases, the design verification is to be completed before relying on the item to perform its Important to safety function.

5. Individuals or groups responsible for design reviews or other verification activities shall be identified in procedures and their authority and responsibility shall be defined and controlled. Design verification shall be performed by any competent individuals or groups other than those who performed the original design but who may be from the same organization. The designer's immediate supervisor or manager may perform the design verification and controls for this are defined in approved procedures.

6. Design verification procedures are to be established and implemented to ensure that an appropriate verification method is used, the appropriate design parameters to be verified are chosen, the acceptance criteria is identified, the verification is satisfactorily accomplished, and the results are properly recorded.

4.0 PROCUREMENT DOCUMENT CONTROL

1. The program will ensure that purchased items and services are of acceptable quality.
2. The program includes provisions for evaluating prospective suppliers and ensuring that selected suppliers continue to provide acceptable products and services.
3. The program includes provisions for taking corrective action with suppliers (qualified or otherwise) whose products and services are not considered acceptable.
4. The program includes provisions for source verification (inspection, audit, etc.) for accepting purchased items and services identified as ITS when determined necessary.
5. The program includes provisions for invoking applicable technical, regulatory, administrative, and reporting requirements (e.g., specification, codes, standards, tests, inspections, special processes, records, certifications, 10 CFR 21) applicable to the procurement to be specified in procurements documents.
6. The program includes provisions for ensuring that documented evidence of an item's conformance to procurement requirements is available at the site before the item is placed in service or used unless otherwise specified in procedures.
7. The program includes provisions for ensuring that procurement, inspection, and test requirements have been satisfied before an item is placed in service or used unless otherwise specified in procedures.
8. The procurement of components, including spare and replacement parts, is subject to quality and technical requirements suitable for their intended service.
9. The program includes provisions for the identification of critical characteristics and methods of acceptance for the dedication of a commercial grade item or service for its use in an ITS function(s).

5.0 INSTRUCTIONS, PROCEDURES AND DRAWINGS

1. Measures are established to assure that quality activities are prescribed by and performed in accordance with documented instructions, procedures, or drawings. These instructions, procedures, and drawings include, as appropriate, quantitative or qualitative acceptance criteria for determining that activities have been satisfactorily accomplished. Controls are established which ensure that instructions, procedures, and drawings are current and accurately reflect the facility design and regulatory requirements.
2. Changes or deviations from established instructions, procedures or drawings for SSCs and other quality activities that have current ITS functions, require the same review and approval as the original document. Instructions, procedures and drawings, including changes and deviations subject to the CR3 QAPM, shall be maintained as required by administrative procedures.
3. Administrative controls may be established that provide the methods by which temporary changes can be made to procedures which are approved, including the designation of persons authorized to approve such changes.

6.0 DOCUMENT CONTROL

1. The program will control the development, review, approval, issue, use, and revision of documents.
2. The scope of the document control program includes, but is not limited to:
   a. Safety Analysis Report(s);
   b. NRC License Documents, including Technical Specifications;
   c. Design Documents and Drawings;
   d. Procurement Documents;
   e. Procedures, Manuals, Plans, Directives, Policies, Instructions, etc.;
   f. Corrective Action Documents; and
   g. Other documents as defined in procedures.
3. Revisions of controlled documents are reviewed for adequacy and approved for release by the same organization that originally reviewed and approved the documents or by a designated organization that is qualified and knowledgeable.
4. Copies of controlled documents are distributed to and used by the person performing the activity.
5. The distribution of new and revised controlled documents is in accordance with procedures. Superseded documents are controlled to prevent inadvertent use.

7.0 CONTROL OF PURCHASED MATERIALS, EQUIPMENT AND SERVICES

1. The program will verify the quality of purchased items and services at intervals and to a depth consistent with the item's or service's importance to safety, complexity and quality of the item or service. Control of items and services for ITS applications are clearly and adequately specified in procurement documents.
2. The program is executed in all phases of procurement. As necessary, this may require verification of activities of suppliers below the primary supplier of the item or service.
3. Procedures shall describe each organization's responsibilities for the control of purchased material, equipment and services including the interfaces between all affected organizations.
4. Controls for the audits or surveys of suppliers providing ITS items and services are provided for in Section 18.
5. Controls for the inspection (source verification/surveillance/inspection) of suppliers providing ITS items and services are provided for in Section 10.

8.0 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS AND COMPONENTS

1. The program will identify and control ITS items to prevent the use of incorrect or defective items.
2. Identification of each item is maintained throughout fabrication, erection, installation, and use so that the item can be traced to its documentation. Traceability is maintained to an extent consistent with the item's importance to safety.

9.0 CONTROL OF SPECIAL PROCESSES

1. This program will ensure that special processes identified as ITS are properly controlled.
2. The criteria that establish which processes are special are described in procedures. The following are examples of special processes:
   a. Welding;
   b. Heat treating;
   c. NDE (Non-Destructive Examination);
   d. Chemical cleaning; and
   e. Unique fabricating or test processes which require in-process controls.
3. Special processes are accomplished by qualified personnel, using appropriate equipment, and procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements.

10.0 INSPECTION

1. The program will ensure inspections of ITS activities are planned, executed and documented in order to verify conformance with instructions, procedures and drawings for accomplishing the activity.
2. Provisions to ensure inspection planning is properly accomplished are to be established. Planning activities shall identify the characteristics and activities to be inspected, the inspection techniques, the acceptance criteria, and the organization responsible for performing the inspections.
3. Provisions to identify inspection hold points, beyond which work is not to proceed without the consent of the inspection organizations are to be defined.
4. Inspection results are to be documented by the inspector and reviewed by qualified personnel.
5. Unacceptable inspection results shall be evaluated and resolved in accordance with procedures.
6. Inspections are performed by qualified personnel other than those who performed or directly supervised the work being inspected. While performing the inspection activity, inspectors functionally report to the nuclear safety manager.

11.0 TEST CONTROL

1. The program will demonstrate that items will perform satisfactorily in service using approved test procedures.
2. The test control program includes, as appropriate, proof tests before installation, pre-operational tests, post-maintenance tests, post-modification tests, and operational tests.
    a. Test procedures shall be developed which include:
    b. Instructions and prerequisites to perform the test;
    c. Use of proper test equipment;
    d. Acceptance criteria; and
    e. Mandatory inspections, as required.
3. Test results are evaluated and documented to assure that test objectives and inspection requirements have been satisfied.
4. Unacceptable test results shall be evaluated and documented for impact on safety and reportability.

12.0 CONTROL OF MEASURING AND TEST EQUIPMENT

1. The program will control the calibration, maintenance and use of measuring and test equipment consistent with activities ITS to ensure accuracy.
2. Calibration reference standards shall be based on traceability to nationally recognized standards. Where national standards do not exist, M&TE is calibrated against standards that have an accuracy of at least four (4) times the required accuracy of the equipment being calibrated, or when this is not possible have an accuracy that ensures the equipment being calibrated will be within the required tolerance. Special calibration and control measures are not required when normal commercial practices provide adequate accuracy (e.g. rulers, tape measures, level, and other such devices).
3. The types of equipment covered by the program (e.g., instruments, tools, gages, and reference and transfer standards) are defined in procedures.
4. Measuring and test equipment is calibrated at specified intervals or immediately before use on the basis of the item's required accuracy, intended use, frequency of use, stability characteristics and other conditions affecting its performance.
5. Measuring and test equipment is labeled, tagged, or otherwise controlled to indicate its traceability to calibration test data.
6. Measuring and test equipment found damaged or out of calibration is tagged or segregated. The acceptability shall be determined of items measured, inspected, or tested with a damaged or out-of-calibration device.

13.0 HANDLING, STORAGE AND SHIPPING

1. The program will control the handling, storage, shipping, cleaning, and preserving of items to ensure the items maintain acceptable quality.
2. Special protective measures (e.g., containers, shock absorbers, accelerometers, inert gas atmospheres, specific moisture content levels and temperature levels, etc.) are specified and provided when required to maintain acceptable quality.
3. Specific procedures shall be developed and used for cleaning, handling, storage, packaging, shipping and preserving items when required to maintain acceptable quality.
4. Items are marked and labeled during packaging, shipping, handling, and storage to identify, maintain, and preserve the item's integrity and identify the need for any special controls.

14.0 INSPECTION, TEST AND OPERATING STATUS

1. The program will ensure that required inspections and tests and the operating status of items ITS is verified before release, fabrication, receipt, installation, test, and use, as applicable. This verification is to preclude inadvertent bypassing of inspections and tests and to prevent inadvertent operation of controlled equipment. Operating status is identified by the use of tags, markings, stamps, or other suitable means.
2. Items whose required inspections and tests are incomplete or inconclusive may be released for further processing. Controls are provided in procedures for establishing limitations on the release, applying status indications and documenting the basis for the conditional release of the item and any limitations.
3. The application and removal of inspection, test, and operating status indicators are controlled in accordance with procedures.

15.0 NONCONFORMING MATERIALS, PARTS OR COMPONENTS

1. CR3 establishes measures to control ITS materials, parts and components which do not conform to requirements. The measures used to control nonconforming materials, parts and components are described by approved procedures.
2. Management at all levels and each individual working at the facility is responsible for promptly identifying and reporting the identification of nonconforming materials, parts and components.
3. The corrective action program will be used to ensure the prompt identification, documentation, and correction of nonconforming materials, parts and components as described in Section 16.0.
4. Nonconforming items are properly controlled by approved procedures describing the identification, documentation, segregation requirements disposition and notification to the affected organizations to prevent their inadvertent installation or use. Nonconforming items are reviewed and either accepted, rejected, repaired, or reworked in accordance with approved procedures.

16.0 CORRECTIVE ACTION

1. Each individual working at the facility is responsible for promptly identifying and reporting conditions adverse to quality. Management at all levels encourages the identification of conditions that are adverse to quality.
2. Significant conditions adverse to quality shall require cause determination, a corrective action that should prevent recurrence, and be documented and reported to appropriate levels of management. Follow-up action shall be taken to verify effective implementation of the required corrective actions to prevent recurrence and to verify that they are effectively implemented.
3. Specific responsibilities within the corrective action program may be delegated, but CR3 maintains responsibility for the program’s effectiveness.
4. Reports of conditions that are adverse to quality are analyzed to identify negative performance trends. Significant conditions adverse to quality and significant trends are reported to the appropriate levels of management.

17.0 QUALITY ASSURANCE RECORDS

1. The program will ensure that sufficient records of ITS items and activities affecting quality (e.g. design, engineering, procurement, manufacturing, construction, inspection and test, installation, pre-operation, startup, operations, maintenance, modification, decommissioning, and audits) are generated and maintained to reflect the completed work.
2. Controls for the administration, identification, receipt, storage, preservation, safekeeping, retrieval, and disposition of records are provided in procedures.
3. Management of the electronic storage of records will utilize the guidance provided in the NIRMA standards as defined in approved procedures.
4. Records generated for SSCs that were once classified as safety-related or quality-related but no longer have a safety function do not need to be retained for purposes of the QAPM (but may need to be retained for other purposes, such as compliance with 10 CFR 50.75(g), other regulations, or for business reasons).
5. As describe within the sales agreement, Duke Energy will maintain historical records under their approved Quality Assurance Program. These records will be made available for ADP should the need arise.

18.0 AUDITS

1. CR3 establishes measures for a system of planned and documented audits in order to verify compliance with all aspects of the QAPM and determines the effective implementation of programs covered by the QAPM. QA internal and supplier audits are planned and performed by qualified auditors utilizing approved written procedures and/or checklists. External audits by licensees / utilities, Contractors, or Consultants acting for CR3 to satisfy CR3 audit requirements shall have the results evaluated by CR3 to ensure acceptability.
2. Lead Auditors shall have experience, training or qualifications commensurate with the scope and complexity of their audit responsibility. Individuals performing audits shall not have direct responsibilities in the areas being audited.
3. Scheduling, preparation, personnel selection, performance, reporting, response, follow-up, and records management for audits are performed in accordance with written procedures. Audit scopes and schedules are based upon the status of work progress, ITS activities being performed, and regulatory requirements. Internal audits for the CR3 QAPM shall continue on a 24-month cycle with a 90 day grace period. Grace periods are not intended to be used repetitively, merely as an administrative convenience to extend audit intervals. Therefore, the next performance due date is based on the originally scheduled date.
4. When specific audits are identified as requiring a more frequent periodicity, the shortest periodicity will be adhered to for activities covered by those specific regulatory requirements. The frequency of internal audits will be prescribed by the site implementing procedures which govern the conduct of QA audits.

5. External audits of suppliers providing ITS materials, parts, equipment or services are scheduled and performed based on the importance of the activity and to confirm implementation of the supplier's QAP at a frequency of not less than three (3) years with a 90 day grace period. The supplier audit requirement shall not apply to standard off-the-shelf items and bulk commodities where required quality can adequately be determined by receipt inspection or post-installation test. The guidance provided within NEI 14-05 may also be used as an alternative for approving suppliers as defined within Appendix B.

6. Audit reports shall be prepared, reviewed, approved and distributed in accordance with approved procedures.

7. Results of audits are reviewed with the management of the organization audited. Responsible management in the areas audited shall implement the necessary corrective actions required to address deficiencies. These actions are documented and reviewed periodically and, if needed, re-examined during re-audits of the subject area to verify deficient areas have completed corrective actions.

8. Audit records shall be retained in accordance with approved implementing procedures.

Appendix A
Important-to-Safety Structures, Systems and Components

The pertinent quality assurance requirements of 10CFR50 Appendix B, 10CFR 71 Subpart H and 10 CFR 72 Subpart G will be applied, as a minimum, to all quality activities affecting ITS SSCs associated with spent fuel storage and transportation package.

NOTE

The safety classification of systems, structures and components (SSCs) at the CR3 facility and the CR3 Independent Spent Fuel Storage Installation (ISFSI) may be revised based on engineering evaluations and a revision to the CR3 safety analysis report. These modifications are controlled in accordance with the design control process and are not considered a reduction in the commitments to the QAPM.

The quality classification of NRC Licensed ISFSI Dry Fuel Storage Components and Transportation Packages may not be revised using the CR3 Design Control Process. These modifications must be made by the NRC Certificate Holder. The Certificate Holder is responsible for design and licensing controls for these components under their NRC approved Quality Assurance Program. CR3 utilizes these types of components and packages under the provisions of an NRC General License for Radioactive Material Transportation Packages (10 CFR 71) and Spent Fuel Storage (10 CFR 72).

Items and services associated with Radioactive Material Transport Packages as described in 10 CFR 71 and Spent Fuel Storage as described in 10 CFR 72 will also fall under the requirements of the QAPM.

Important-to-Safety SSCs associated with spent fuel storage and radioactive material transportation packages are defined below:

IMPORTANT-TO-SAFTY AS DEFINED BY 10 CFR 71 AND 10 CFR 72

A. Dry Spent Fuel Storage (10 CFR 72)

SSC	Quality Category	Design/Licensee Responsible
DSC and Fuel Basket Assembly	A	Transnuclear
Horizontal Storage Module	B	Transnuclear
ISFSI Pads	NITS	ADP CR3
Damaged Fuel Container	A	Transnuclear

Appendix A

Important-to-Safety Structures, Systems and Components

B. Transport of Spent Fuel and GTCC Waste (10 CFR 71)

SSC	Quality Category	Design/Licensee Responsible
DSC and Fuel Basket Assembly	A	Transnuclear
Damaged Fuel Container	A	Transnuclear
Radioactive Waste Container (RWC) and Liner for GTCC Waste	B	Transnuclear
Fuel Transport Cask	A	Transnuclear
GTCC Waste Transport Cask	A	Transnuclear

C. Radioactive Material Transport Packages (10 CFR 71)

Radioactive Material Transport Packages subject to the provisions of 10 CFR 71, Subpart C, “General Licenses” are “Important-to-Safety” and subject to the applicable requirements of the QAP.

NOTES:

1. No safety related SSCs remain at the CR3 facility.

2. See Transnuclear Safety Analysis Report (SAR) and associated Transnuclear specifications for additional classification information. Transnuclear defines the classification of the SSCs and CR3 reflects this information in Appendix A for those SSCs described.

3. See Transnuclear Transport Cask Safety Analysis Report (SAR) and associated Transnuclear specifications for additional classification information.

4. For the definition of Quality Categories A, B and C refer to NUREG/CR-6407.

5. CR3 procedures define the safety classification assigned to the ISFSI pad.

6. There are no required ITS functions of the RWC and liner during storage of GTCC waste. However, the RWC has conservatively been classified as ITS-A for confinement boundary integrity and the liner has been classified as ITS-B for shielding during storage of GTCC waste in the ISFSI. Both the RWC and liner have been classified as ITS-B for transportation of GTCC waste.

Appendix B

CR3 Commitments

This table presents the Regulatory Guides and ANSI Standards endorsed by CR3 as part of its Quality Program.

In each of the ANSI Standards, other documents (i.e., other Standards, codes, regulations, tables, or appendices) required to be included as part of the Standard are either referenced or described in a special section of the Standard. The specific applicability or acceptability of these referenced Standards, codes, regulations, tables, or appendices is either covered in other specific areas in the CR3 Quality Program Description, including this list, or such documents are not considered as Quality Program requirements, although they may be used as guidance. Whenever a standard endorsed in this appendix invokes ANSI N45.2, CR3 shall interpret the statement to mean a QA Program which meets the requirements of 10 CFR 50, Appendix B.

When Sections of Standards are referenced within a clarification, it is understood that CR3 shall comply with the referenced Sections as clarified.

NRC Regulatory Guide 1.8 - "Personnel Selection and Training" (Revision 1, 9/75) - Endorses ANSI N18.1-1971.

With the Certification of Permanent Cessation of Power Operations, ADP CR3 has permanently ceased power operations of CR3. CR3 follows this Regulatory Guide and associated Standard for the remaining ITS activities associated with SAFSTOR, decommissioning, and the ISFSI. Specifically, each member of the facility staff responsible for the safe storage of nuclear fuel and radiation protection personnel, including those performing final status survey activities shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions as defined in approved procedures except for: a) the radiation protection manager who shall meet or exceed the qualifications of Regulatory guide 1.8, September 1975. The additional clarifications also remain in place:

1) CR3 often uses additional non-CR3 employees and contract personnel to augment the facility staff. When used to perform ITS activities, these personnel shall meet the education, training and experience requirements of ANSI N18.1-1971 for equivalent positions.

2) Operators licenses, which are issued by the NRC and discussed in ANSI N18.1-1971, are no longer required based upon the NRC approval of TS Amendment 244.

With regard to Section 4 of ANSI N18.1-1971, titled Qualifications: Selection and qualification of personnel is based on the established requirements of that position through CR3 hiring and CR3 policies, thereby meeting the intent of ANSI N18.1. The hiring policies are governed by ADP management policies.

Appendix B

CR3 Commitments

With regard to paragraph 5.5 of ANSI N18.1-1971, titled Retraining and Replacement Training: CR3's retraining and replacement training program for the facility staff shall be maintained under the direction of the Management position that is responsible for overall spent fuel safety, Crystal River Nuclear Plant. Subjects addressed in Section 5.5 of ANSI N18.1-1971 will be included as appropriate using a System Approach to Training.

3) With regard to paragraph 4.2.1 of ANSI N18.1-1971, titled Plant Manager, and paragraph 4.2.2 of ANSI N18.1-1971, titled Operations Manager: Operators licenses, which are issued by the NRC and discussed in ANSI N18.1-1971, are no longer required based upon the NRC approval of TS Amendment 244. The CR3 management structure does not require any positions to attend equivalent training.

NRC Regulatory Guide 7.10, Revision 3 (6/15), "Establishing Quality Assurance Programs for Packaging Used in the Transportation of Radioactive Material"

With the Certification of Permanent Cessation of Power Operations, ADP CR3 has permanently ceased power operations. CR3 uses this Regulatory Guide for QAPM content guidance as it applies to users of transportation packaging. This guidance is also considered for the use of Part 72 storage modules under a General License.

NUREG/CR-6407, "Classification of Transportation Packaging and Dry Fuel Storage System Components According to Important to Safety (2/96)"

With the Certification of Permanent Cessation of Power Operations, ADP CR3 has permanently ceased power operations of CR3. CR3 utilizes this NUREG for guidance in the classification of transportation packaging and dry fuel storage system components according to ITS.

Alternatives

Suppliers providing commercial grade calibration and testing services, who are accredited by a nationally recognized accrediting body, as described in Nuclear Energy Institute (NEI) 14-05 guidelines, may be used without additional qualification, provided the conditions of the associated NRC Safety Evaluation are met. Controls shall be established in applicable procedures to ensure the requirements of the NRC Safety Evaluation are satisfied prior to acceptance.

Appendix C

Administrative Controls

Independent Reviews

1.0 Independent Management Assessment (IMA)

The nuclear executive shall periodically have an IMA performed to evaluate the effectiveness of the CR3 QAPM. These IMAs are performed by individual(s) designated by the nuclear executive who are independent of ADP CR3 oversight activities and who have the appropriate level of expertise in the activities being assessed. These periodic IMAs shall be performed on a 24 month frequency with a 90 day grace period, which is not to impact the established 24 month cycle for the assessment. The IMA results are communicated via a written report in a timely manner to the nuclear executive to execute effective corrective actions. In addition, these results are reported to the ADP CR3 President through the nuclear executive.

2.0 Independent Safety Review (ISR)

Independent Safety Reviewers perform ISRs of proposed changes, tests and experiments to important to safety SSCs, activities, program documents and procedures that are subject to the CR3 QAPM requirements. Independent Safety Reviewers shall be individuals without direct responsibility for the performance of activities under review and shall be competent and knowledgeable in the subject area being reviewed. Independent Safety Reviewers shall have at least 5 years of professional experience and either a bachelor's degree in Engineering or the Physical Sciences or shall have equivalent qualifications in accordance with ANSI/ANS 18.1-1971. The management position that is responsible for overall spent fuel safety (or designee) shall document the appointment of Independent Safety Reviewers as defined in procedures.