

APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report: 50-267/86-21

License: DPR-34

Docket: 50-267

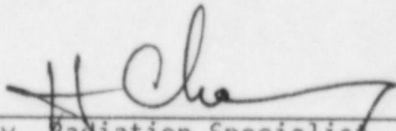
Licensee: Public Service Company of Colorado (PSC)  
P.O. Box 840  
Denver, Colorado 80201-0840

Facility Name: Fort St. Vrain Nuclear Generating Station (FSV)

Inspection At: FSV Site, Weld County, Platteville, Colorado

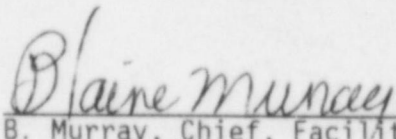
Inspection Conducted: August 4-8, 1986

Inspector:

  
\_\_\_\_\_  
H. Chaney, Radiation Specialist, Facilities  
Radiological Protection Section

9/5/86  
Date

Approved:

  
\_\_\_\_\_  
B. Murray, Chief, Facilities Radiological  
Protection Section

9/5/86  
Date

Inspection Summary

Inspection Conducted August 4-8, 1986 (Report 50-267/86-21)

Areas Inspected: Routine, unannounced inspection of radwaste management, radiological effluent releases, and radioactive material transportation programs.

Results: Within the areas inspected, one violation (see paragraph 10) and no deviations were identified.

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DETAILS

1. Persons Contacted

PSC

- \*L. W. Singleton, Manager, Quality Assurance (QA)
- C. H. Fuller, FSV Station Manager
- \*F. J. Borst, FSV Support Services Manager
- M. J. Faris, Manager, Operations QA
- V. J. McClaffic, Supervisor, Radiochemistry
- \*S. Hofstetter, Licensing Operations
- \*T. D. McIntire, Supervisor, Site Nuclear Engineer Department
- \*P. F. Moore, QA Technical Support Supervisor
- D. L. Frye, Senior Licensing Specialist
- S. Sherrow, Health Physicist
- W. Woodard, Health Physicist

Others

- R. E. Farrell, NRC Senior Resident Inspector
- \*P. Michaud, NRC Resident Inspector

\*Denotes those individuals present during the exit interview on August 8, 1986.

The NRC inspector also interviewed other licensee employees including health physics (HP), operations, QA, and document control.

2. Licensee Action on Previously Identified Inspection Findings

(Closed) Violation (267/8511-001): Certified Package Procurement - This violation was discussed in NRC Inspection Report 50-267/85-11 and involved the licensee's failure to properly implement QA reviews of procurement documents for radioactive materials packages procured in accordance with the requirements of Appendix H to 10 CFR Part 71. The licensee's corrective actions concerning this violation are considered adequate. This item is considered Closed.

(Closed) Violation (267/8511-002): Receipt Inspection of Radioactive Material Transportation Packages - This violation was discussed in NRC Inspection Report 50-267/85-11 and involved the licensee's failure to perform a receipt inspection of components used in NRC certified radioactive materials shipping packaging. The licensee's corrective actions are considered adequate. This item is considered Closed.

(Closed) Violation (267/8602-02): Transfer of Licensed Materials to an Unauthorized Location - This violation was discussed in NRC Inspection

Report 50-267/86-02 and involved the licensee's transfer of radioactive materials to an unauthorized location. Licensee corrective actions are considered adequate. This item is considered Closed.

3. Organization and Management Controls

The NRC inspector examined the organization and staffing of the licensee's organization concerning radioactive waste management and radioactive material transportation activities to determine agreement with commitments in Sections 12.1 and 12.3 of the Updated Final Safety Analysis Report (UFSAR); the requirements of 10 CFR Parts 20 and 50, and Technical Specifications (TS) 7.1 and 7.4; and the recommendations of NRC Regulatory Guides (RG) 1.33, 1.8, and 8.8.

The NRC inspector reviewed staffing charts, position descriptions, and administrative documents assigning responsibilities regarding radioactive waste management, radiological effluent control, and the transportation of radioactive materials. Interviews were held with personnel responsible for the above noted activities.

The NRC inspector noted that the licensee had revised FSV Administrative Procedure P-3, "Radioactive/Contaminated Waste/Area Control," which now provides authority for radiation protection technicians to stop unsafe radiological work. This resolves the NRC concern addressed in NRC Inspection Report 50-267/86-02. The NRC inspector noted that current station procedures provide too much flexibility regarding personnel authorized to sign documents certifying shipment of radioactive materials. Licensee representatives stated at the exit interview on August 8, 1986, that the station's position on persons authorized to sign shipment documents would be reviewed for possible clarification.

No violations or deviations were identified.

4. Qualifications and Training

The NRC inspector examined the qualifications and training of personnel responsible for radioactive waste management, radiological effluent releases, and transportation of radioactive materials to determine agreement with commitments in Section 12.2 of the UFSAR; the requirements of NRC Inspection and Enforcement (IE) Bulletin 79-19, 10 CFR Part 19.12, TS 7.1.1.h; and the recommendations of RGs 1.8, 8.27, and NUREG-0761.

The NRC inspector reviewed personnel training records, training outlines, training procedures, and interviewed selected personnel.

No violations or deviations were identified.

5. Audits

The NRC inspector reviewed the licensee's QA audit program for radioactive waste management, radiological effluent releases, and transportation of

radioactive materials to determine compliance with 10 CFR Parts 20, 61, and 71; Department of Transportation (DOT) 49 CFR Parts 171-178; TS 7.1.3, 7.4, 7.5.3 and 8.0; and commitments in Section 11.1 of the UFSAR.

The NRC inspector reviewed QA manuals, audit procedures, audit checklists, audits conducted by the Nuclear Facility Safety Committee (NFSC) during 1985 and 1986, audit findings, corrective action tracking and responses to findings, and auditors' qualifications.

No violations or deviations were identified.

## 6. Radioactive Effluent Releases

The NRC inspector reviewed the licensee's liquid and gaseous radwaste processing systems, operational procedures, and records associated with liquid and gaseous releases to determine agreement with commitments in Section 11.1 of the UFSAR; the requirements in 10 CFR Parts 20 and 50, TS 7.3.b.5 and 8.0; and the Offsite Dose Calculation Manual (ODCM).

### a. Liquid

The NRC inspector reviewed a representative number of liquid release permits for the period of January 1985 through July 1986. The NRC inspector determined that processing, sampling and analysis, and discharge approval were conducted in accordance with TS and plant procedures. Quantities of radioactive nuclides released in the liquid effluents were within the limits of specified in Appendix I to 10 CFR Part 50, and TS 8.0 (Radiological Effluent Technical Specifications - RETS). The NRC inspector determined that no design changes to the liquid radioactive waste system had been made since the previous NRC inspection conducted March 1985. The licensee is proceeding with the installation of an on-line beta radiation monitor for monitoring and controlling discharge of liquid effluents. The licensee will provide the NRC Project Manager documentation concerning the installation, testing, and calibration of the beta monitor. Projected offsite doses were verified to have been made at the required frequency and in the proper manner.

### b. Gaseous

The NRC inspector reviewed representative gaseous release permits which included continuous and batch releases from the waste gas processing system for the period January 1985 through July 1986. It was determined that gaseous waste releases were performed according to TS and plant procedures, and that the quantities of noble gases and particulates were within the limits specified in the TS. Projected offsite doses were verified to have been made at the required frequency and in the proper manner. The NRC inspector determined that no design changes had been made to the gaseous waste management system since the previous NRC inspection conducted in March 1985.

The NRC inspector reviewed gaseous waste records for determining the maximum amount of Krypton 88 in the waste gas system surge tank.

The NRC inspector reviewed the licensee's results involving reduction of historical meteorological data and the calculation of a new annual average dilution factor for use in calculating gaseous effluent releases and monthly offsite doses specified in the ODCM.

No violations or deviations were identified.

7. Records and Reports of Radioactive Effluents

The NRC inspector reviewed the licensee's records and reports concerning effluent releases to determine compliance with the requirements of TS 7.5.1.a, 7.5.1.e, 7.5.3, 8.1.1, and 8.1.2, and 10 CFR Part 20.401(c)(2).

The NRC inspector reviewed semiannual reports for 1985 and raw data for the first half of 1986. Reports contained the information required by NRC Regulatory Guide (RG) 1.21. No licensee event reports (LERs) had been written since the previous NRC inspection of this area in March 1985.

No violations or deviations were identified.

8. Radioactive Effluent Release Procedures

The NRC inspector reviewed the licensee's effluent release procedures to determine agreement with commitments in Section 11.2.3.3 of the UFSAR; compliance with TS 8.1.1, 8.1.2, 8.1.3, 8.1.4, and 8.1.5; and TS surveillance requirements.

The licensee's procedures concerning the release of liquid, gaseous, and solid radioactive wastes were reviewed for format and content.

No violations or deviations were identified.

9. Air Cleaning Systems

The NRC inspector reviewed the licensee's procedures, surveillance tests, selected records and test results for air cleaning systems containing high-efficiency particulate air (HEPA) filters and activated charcoal adsorbers to determine agreement with the commitments in Section 6.2.5 of the UFSAR; the requirements of TS 5.5.3.a, b, c, e; and the recommendations of industry standard ANSI N510-1975.

The licensee's procedures provided for the required periodic inspections and testing of HEPA and adsorber systems. Checklists and testing results provided by outside contractors for the 1985 and 1986 inspections/testing were reviewed. The NRC inspector noted that one adsorber bed failed leak test requirements and the charcoal adsorber material was replaced in October 1985. All other results were within TS limit.

No violations or deviations were identified.

10. Radioactive Process and Effluent Monitoring Instrument Calibration

The NRC inspector reviewed the licensee's effluent monitoring instrumentation for agreement with commitments in Section 11 of the UFSAR; the requirements of TS 8.1.1 and 8.2.1; and the recommendations of NRC RG 4.15.

The NRC inspector inspected the licensee's placement and status of operation of liquid and gaseous effluent monitors and selected process and alert monitors for liquid and gaseous waste streams. Procedures for calibration, alarm/trip setpoint adjustments, functional checking of actuations, and calibration records for 1985 were reviewed. Discussions were held with radiochemistry, operations, and health physics personnel regarding the licensee's use of radioactive gas standards to calibrate gaseous monitors, verification of alarm/trip setpoints, and the use of radioactive liquids standards to calibrate liquid effluent monitors.

TS 8.1.j requires, in part, that "The alarm/trip setpoints of radioactive gaseous effluent activity monitors shall be determined and adjusted in accordance with the Offsite Dose Calculation Manual (ODCM)." Furthermore, FSV Support Services Manager's Administrative Procedure (SUSMAP) - 2, "Offsite Dose Calculation Manual," states, in part, that "These procedures will be utilized by the operating staff of FSV to assure compliance with the Technical Specifications." During the review of alarm/trip setpoints for the plant stack noble gas effluent monitors RT 7324-1 and RT 7324-2, the NRC inspector determined that the trip setpoints established in the master setpoint log (in the control room) and setpoint monitors at  $3.50 \text{ E}+4$  and  $1.30 \text{ E}+3$  counts per minute (CPM), respectively. These setpoints were last established on October 25, 1985, during the last routine scheduled calibration of the instruments. Using FSV Procedure SUSMAP-2, Revision 12, dated April 18, 1986, the NRC inspector determined on August 7, 1986, that the aforementioned monitors' setpoint should have been set at  $3.10 \text{ E}+4$  and  $9.80 \text{ E}+3$  CPM, respectively. This is an apparent violation of TS 8.1.j (267/8621-01).

After the licensee was notified of the apparent error in setpoint settings on August 7, 1986, the licensee took immediate action to verify the NRC inspector's calculations, and upon reaching agreement with the NRC inspector, initiated the following corrective actions:

- o Verified the setpoints of all effluent and process monitors and established the required setpoints per the ODCM.

- o Issued a setpoint change request to correct setpoints on the monitors listed below:

RT Monitor	Function (1)		Setpoint/Trip (CPM)	
			Current	Revised
6314-1	Waste Gas Iod.	(C)	7.00 E+6	7.10 E+6
6314-2	Waste Gas NG	(C)	1.70 E+6	1.50 E+6
7325-1	Effluent Iod.	(C)	1.60 E+3	4.70 E+3
4801	Plant Stack Part.	(P)	1.00 E+4	9.20 E+3
4802	Plant Stack Iod.	(P)	1.90 E+4	1.00 E+4
4803	Plant Stack NG	(P)	2.34 E+4	2.30 E+4
73437-1	Plant Stack Iod.	(C)	2.00 E+4	1.70 E+4
73437-2	Plant Stack Part.	(C)	9.50 E+3	1.10 E+4

(1) (C) = Release control monitoring function, (P) = Process monitoring function, IOD. = Iodine radioactivity, NG = Noble gas radioactivity, Part. = Particulate radioactivity

No setpoints were found that would have resulted in the discharge of radioactive effluents above the limits established by the TS or 10 CFR Part 20.

- o Issued a revision to radiochemistry procedure (RCP-30), "Isotopic Calibration of Particulate, Iodine and Noble Gas Activity Monitors, Revision 7, dated August 8, 1986, which establishes instrument sensitivities, alarm/trip setpoints, and instructions, for verifying that setpoints are in agreement with SUSMAP-2.

The licensee's corrective actions were reviewed by the NRC inspector on August 8, 1986, and determined to be adequate to correct the apparent violation and prevent a recurrence.

#### 11. Low-Level Radioactive Waste (LLRW) Management Program

The NRC inspector inspected the licensee's program for the control, classification, characterization, and shipment of low-level radioactive waste to determine agreement with commitments in Section 11.1.3.1 of the UFSAR; the requirements in 10 CFR Parts 20.301, 311, 51.55, and 61.56, and TS 7.5.e and 8.1.4; the recommendations NRC I&E Notices 85-05, 85-92, 86-20, and NRC branch technical positions concerning LLRW classification and waste form.

The NRC inspector reviewed selected records and procedures concerning the licensee's solid waste processing program, including: training, vendor support (the licensee has not as of this inspection been required to solidify any wet wastes), waste classification and characterization procedures, shipment manifests, material segregation, surveying of potentially contaminated material, sampling and analysis of waste streams, compaction of dry active waste, and the Process Control Program (PCP). The licensee was noted to have a current copy of the disposal site license.

The following table lists the disposal and storage of radioactive waste for the periods January - December 1985 and (January - June 1986):

<u>Types of LLRW</u>	<u>Shipments To Burial</u>	<u>LLRW to be Shipped</u>	<u>Long Term Storage*</u>
DAW (m <sup>3</sup> )	43.1 (0.0)	<1.0 (2.0)	0.0 (0.0)
Wetted Wastes (m <sup>3</sup> )	66.1 (0.0)	0.0 (0.0)	5.0 (6.0)
Irradiated Components (m <sup>3</sup> )	73.6 (0.0)	0.0 (31.0)	0.0 (0.0)

\*Denotes waste being held pending 10 CFR Part 20.302 determination.

No violations or deviations were identified.

## 12. Onsite Low-Level Radioactive Waste Storage

The licensee's onsite low-level radioactive waste storage facilities were reviewed for agreement with the guidance provided in NRC Generic Letter 81-38.

The NRC inspector reviewed representative records, inspected storage facilities, and discussed with licensee personnel the long term storage of certain waste forms. The licensee currently has approximately 24 drums (55 gallon) of absorbed radioactively contaminated oil and 5 drums of dewatered resins in long term storage. The licensee is awaiting finalizing of the state of Nevada disposal site burial criteria for such wastes. The licensee's storage facilities were previously discussed in NRC Inspection Reports 50-267/83-28, 85-02, and 85-11. The onsite storage facilities still consist of several 30-foot van-type trailers.

No violations or deviations were identified.



13. Radioactive Material Transportation Program

The NRC inspector reviewed the licensee's radioactive material transportation program for agreement with commitments in Section 11.1.1.1 of the UFSAR; compliance with the requirements of 10 CFR Part 71, 49 CFR Parts 171 through 178, NRC IE Bulletin 79-19; and agreement with the recommendations of NRC Regulatory Guides (RGs) 7.1 through 7.10, and the guidance contained in IE Information Notice 85-46.

a. Audits and Appraisals

The licensee's recent audits (January and May 1986) of transportation and solid radioactive waste activities was reviewed and found to be satisfactory in scope and content. The audit checklist and qualifications of the auditors was determined to be satisfactory.

b. Procedures

The licensee's procedures for processing radioactive material and spent fuel shipments was reviewed and found to incorporate the essential portions of NRC and DOT requirements.

c. Radioactive Material (RAM) and Spent Fuel Shipments

The licensee's records of RAM and spent fuel shipments for January 1985 through July 1986 were reviewed. The licensee made 22 spent fuel shipments to the Department of Energy in Idaho in 1986, and approximately 29 shipments of RAM/waste between 1985 and 1986. Shipping and accountability documents, prior notifications, package inspections, certificate of authorization for packaging use, and determination of curie content of packages were in order.

d. Procurement and Reuse of NRC Certified Packagings

The licensee's procedures for the procurement of certified packagings and the receipt inspections of packagings were reviewed. The licensee procures packagings in accordance with QA procedures, and performs receipt inspections and maintenance activities in accordance with vendor approved procedure/checklists. The licensee maintains vendor maintenance manuals on all packagings normally used.

e. Transportation Incidents

The licensee stated that they were not aware of any transportation incidents involving licensed materials that have occurred since the last inspection of this area in April 1985.

f. Quality Assurance Program

The licensee maintains an NRC approved QA program that implements the requirements of Appendix H to 10 CFR Part 71.

g. Records and Report

The licensee's records for BAW and spent fuel shipments were reviewed, as were material receipt inspection surveys and packaging receipt inspections. Licensee submitted Semi-Annual Effluent Reports contain the shipment volume information required by FSV TS 7.5.e. The recommendations of NRC RG 1.21 are incorporated by reference into the aforementioned TS.

No violations or deviations were identified.

14. Exit Interview

The NRC inspector met with the licensee's representatives and the NRC resident inspector identified in paragraph 1 of this report at the conclusion of the inspection on August 8, 1986. The NRC inspector summarized the scope and the results of the inspection.

## ATTACHMENT

 FT ST VRAIN PROCEDURES  
 REVIEWED FOR  
 NRC INSPECTION REPORT  
 50-267/86-21

<u>TITLE</u>	<u>REVISION</u>	<u>DATE</u>
<u>FSV Administrative Procedures</u>		
Q-3. Radioactive/Contaminated Waste/Area Control	12	07-29-86
Q-1. FSV Organization & Responsibilities	8	02-13-86
Q-4. Procurement System	8	07-09-86
Q-7. Control of Procured Materials, Equipment, and Services	8	04-28-86
<u>Support Services Managers Administrative Procedures (SUSMAP)</u>		
SUSMAP-1. Health Physics, Radiochemistry, and Chemistry Experience, Qualification and Training Requirements	11	11-05-85
SUSMAP-2. Offsite Dose Calculation Manual and Radiological Environmental Monitoring Program (REMP)	12	04-18-86
SUSMAP-3. Process Control Program	2	11-13-84
SUSMAP-4. Radiation Protection Plan	6	05-06-86
SUSMAP-8. Chemical Control Program	1	04-08-86
<u>Health Physics Procedures (HPP)</u>		
HPP-17. Determining Radioactive Liquid Release Rates	8	06-19-86
HPP-18. Radioactive Gas Waste Release Rate Calculations	6	09-16-85
HPP-23. Receiving Radioactive Materials	10	07-29-86

TITLE	REVISION	DATE
HPP-26, Radioactive Material Control and Handling	14	11-01-85
HPP-30, Shipment of Radioactive Material	7	07-24-86
HPP-33, Fast Gas and Iodine Sampling	10	03-26-86
HPP-46, Technical Specifications Related to Health Physics	5	07-24-86
HPP-47, Guide for Obtaining Gas Samples from the Helium Trailer and Other Systems	5	02-07-85
HPP-51, Continuous Air Monitors Filter and Cartridge Change Out	6	06-19-86
HPP-53, RT-7325 and RT-73437 Emergency Filter and Cartridge Removal	5	04-01-85
HPP-56, Reactor Building Exhaust Stack Discharge Activity Calculation	8	06-24-86
HPP-60, Reactor Building Sump (T-7202) Effluent Sampling	8	07-09-86
<u>Radiochemistry Procedures Associated with Effluent Releases (RCP)</u>		
RCP-9, Sample Preparation for Gamma Spectral Analysis	9	10-31-84
RCP-10, Sample Preparation for Gross Beta and Gross Alpha Analysis	10	05-24-85
RCP-18, Operation and Calibration Procedure for the Beckman LS100C	11	10-15-85
RCP-21, Quality Assurance Program for the Radiochemistry Laboratory	12	12-09-85
RCP-24, Analysis for Vent Particulate and Iodine Monitor Filter for Surveillance Requirement ESR B.8.ief-w	5	02-07-85
RCP-30, Isotopic Calibration of Gaseous Activity Monitors Using KR <sup>85</sup>	7	08-08-86
RCP-32, Operation and Calibration Procedure for the Harshaw TASC-12 Automatic Alpha/Beta Counting System	7	03-21-85
RCP-36, Radiochemistry Calculations	10	05-13-86

TITLE	REVISION	DATE
<u>Results Procedures (RP)</u>		
RP-502, Calibration and Maintenance of the RT-73437 Stack Monitor System	4	05-14-85
RP-508, Reactor Building Sump's Continuous Sampler	1	07-02-84
<u>Results Department Surveillance Procedures (SR)</u>		
SR 5.4.1.2.6.c-R, Reheat Header Activity Calibration	24	12-07-84
SR 5.4.9-A1, Process Gamma Monitors	25	01-11-85
SR 5.4.9-A2, Process Beta Monitors Calibration	26	01-24-86
SR 5.5.3a-SA, Reactor Building Exhaust Filters Charcoal Filter Samples	6	11-30-84
SR 5.5.3bc-A, Reactor Plant Exhaust Filters Charcoal Filter Halogenated Hydro- Carbon Removal and HEPA Leak Test	6	11-30-84
SR 5.5.3e-W, Reactor Plant Exhaust Filter HEPA and Charcoal Pressure Drop Check	22	03-14-86
SR-HE-5-A, Halogenated Hydrocarbon Removal and HEPA Filter Leak Test	2	11-30-84
SR-OP-41-X, Volume (Batch) Release From Reactor Building Sump	4	07-09-86
ESR 8.1.1a-1.5Y, Radioactive Gaseous Effluent System Calibration	3	12-07-84
ESR 8.1.1a-m, Radioactive Gaseous Effluent Vent Monitor System Source and Functional Test	6	11-01-85
ESR 8.1.1d-X, Equivalent Curies of 88 Kr in Gas Waste System	5	11-15-85
ESR 8.1.2c-1.5Y-X, Radioactive Liquid Effluent Activity Monitors Calibration	4	09-27-85
ESR 8.1.2c.0, Radioactive Liquid Effluent Activity Monitors Functional Test	10	07-15-86

<u>TITLE</u>	<u>REVISION</u>	<u>DATE</u>
ESR 8.1.4ab-X, Solid Radioactive Waste	3	01-04-85
ESR 8.1.5ab-M, Total Dose	3	01-04-85
<u>Training Programs Administrative Manual (TPAM)</u>		
TPAM-RP, Health Physics and Radiochemistry Training Programs	9	03-05-86
<u>Nuclear Facility Safety Committee (NFSC) Audits</u>		
NFSC K-85-01, Radwaste, Effluents, and Meteorology		10-21-85
NFSC J-86-01, Environmental (Radiological and Non-Radiological) Monitoring		02-18-86
NFSC I-86-01, Offsite Dose Calculation Manual and Process Control Program		06-01-86
<u>Standard Operating Procedures (SOP)</u>		
SOP 62, Radioactive Waste & Radiation Protection	33	11-04-85
SOP 63, Radioactive Gas Waste	27	10-02-85
<u>Other Documents Related to the Inspection</u>		
FSV Semi-Annual Radiological Effluent Release Reports 1983, 1984 and 1985		
FSV Internal Memorandum (From TSS J. Sills to SSM F. Borst), Serial No. PPC-86-3010, date June 30, 1986, Subject: 12 Month Data Reduction Per Reg. Guide 1.21 Format (Meteorological Data)		
FSV Summary of Spent Fuel Shipping Activities (PPC-86-2416)		05-28-86
Liquid and Gaseous Waste Release Summaries for 1985 and 1986		
Radioactive Material Shipment Records for 1985 (21 Shipments) and 1986 (9 Shipments)		
Fuel Shipping Cask Maintenance Records (MPF-1001)		10-16-85
Fuel Shipping Documents: (22 Shipments)		
FHPWP-66		03-24-86
FHPWP-67		03-24-86
FHPWP-105		11-01-85
FHPWP-106		03-24-86