



Country Waste Profile Report for
ARGENTINA
Reporting Year: 2011

*For guidance on reading Country Waste Profile Reports,
please refer to the following internet based document:*

<http://www-newmdb.iaea.org/help/profiles9/guide.pdf>

*For further information, please contact the Responsible Officer via e-mail:
NEWMDB@IAEA.org*

Waste Classification Schemes

Country: ARGENTINA

Reporting Year: 2011

Waste Class Matrix: **IAEA Def.**

This country does use the IAEA Scheme: Yes

Description: The Agency's standard matrix

| Waste Class Name | Distribution % | | | |
|------------------|----------------|-------|-------|-------|
| | VLLW | LLW | ILW | HLW |
| VLLW | 100.0 | 0.0 | 0.0 | 0.0 |
| LLW | 0.0 | 100.0 | 0.0 | 0.0 |
| ILW | 0.0 | 0.0 | 100.0 | 0.0 |
| HLW | 0.0 | 0.0 | 0.0 | 100.0 |

Comment **# 23077: Clasificación de Residuos**

Considerando que el sistema de clasificación utilizado hasta este momento no contemplaba todos los tipos de residuos radiactivos generados en el país, resultando incluso en algunas ocasiones dificultoso relacionarlo con otros esquemas de clasificación utilizados internacionalmente, se ha adoptado como sistema de clasificación el nuevo esquema propuesto por el Organismo Internacional de Energía Atómica, que contempla seis clases de residuos radiactivos, basados básicamente en consideraciones de seguridad a largo plazo, y por lo tanto, implicando la disposición de los residuos.

Definition of «unprocessed waste» and «processed waste»:

This country uses the following definitions:

| | as-generated waste | processed for handling | processed for storage | processed for disposal |
|--------------------|--------------------|------------------------|-----------------------|------------------------|
| Unprocessed means: | x | x | x | |
| Processed means: | | | | x |

Groups Overview

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------------|---|
| Reporting Group: | RG1 |
| Inventory Reporting Date: | December 2011 |
| Waste Matrix Used: | IAEA Def. |
| Description: | Este grupo informa acerca de los residuos radiactivos gestionados en el Area de Gestión Ezeiza (AGE). |

| Site Name | Facility Name | Facilities Defined | | |
|-----------|---------------|--------------------|---------|----------|
| AGE | COMPACTOR | processing | | |
| | CP | | | disposal |
| | DS | | storage | |
| | ID | processing | | |
| | IRWS | | storage | |
| | LLLWT | | | disposal |
| | LLSWT | | | disposal |
| | M1 | | storage | |
| | TN | | storage | |

Groups Overview

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------------|--|
| Reporting Group: | RG2 |
| Inventory Reporting Date: | December 2011 |
| Waste Matrix Used: | IAEA Def. |
| Description: | This group reports about the stored radioactive wastes in both Argentinian nuclear power plants, CNAI and CNE. |

| Site Name | Facility Name | Facilities Defined | | |
|-----------|---------------|--------------------|---------|--|
| CNA I | CEMENT | processing | | |
| | COMPACTOR | processing | | |
| | DRUMS | | storage | |
| | EVAPORATOR | processing | | |
| | FILTERS | | storage | |
| | RESINS 1 | | storage | |
| | RESINS 2 | | storage | |
| | TR SYSTEM | processing | | |
| CNE | COMPACTOR | processing | | |
| | DRUMS | | storage | |
| | FILTERS | | storage | |
| | RESINS | | storage | |

Comment

9935: Reporting Group RG2

The operation of the nuclear power plants is responsibility of Nucleoeléctrica Argentina S.A. (NASA). Both plants work with natural Uranium as fuel and heavy water as moderator and coolant.

Site (Structure) : AGE

Country: ARGENTINA

Reporting Year: 2011

Full Name: AREA DE GESTION DE RESIDUOS RADIATIVOS EZEIZA.

Description: Approx. 25 km to west from Buenos Aires within the Ezeiza radioactive waste management area (AGE), covering approx. 8 ha exclusively used for treatment, conditioning and final disposal of low-level solid and liquid wastes.

Apart from disposal, the area is also used for temporary storage of wastes that, for their characteristics, type of radionuclides and activity concentration, cannot be disposed of on site and are waiting for the construction of an appropriate repository. In this area disused sealed sources as well as spent fuel from the RA 3 Research and Production Reactor are also stored.

Official Website:

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Comment # 26981: Disposal units

Two trenches for conditioned waste in drums and two silos for disposal of structural radioactive wastes and sealed sources.

Comment # 26984: Institutional Framework

The ARN (Autoridad Regulatoria Nuclear) is an independent public sector agency under the jurisdiction of the Office of the President, which is responsible, in accordance with section 7 of the Law, for the regulation and supervision of nuclear activities in all matters related to nuclear and radiological safety, physical protection and control of the use of nuclear materials, licensing and surveillance of nuclear facilities and international safeguards, including management of radioactive wastes.

Waste management facilities that are located at this site:

| Facility: | COMPACTOR | | | | | | | | | | | | | | | |
|---|---|---------|---------|------|----|----|-----|-----|-----|-----|----|----|-----|----|----|--|
| Description: | Esta instalación se utiliza para compactar residuos sólidos compactables en tambores de 200 litros. Una prensa hidráulica de 16 ton. es la que se usa para realizar el trabajo de compactación. | | | | | | | | | | | | | | | |
| Processing part of facility | COMPACTOR | | | | | | | | | | | | | | | |
| The following shows processing status for waste classes and SRS. | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Waste Class</th> <th>Actual</th> <th>Planned</th> </tr> </thead> <tbody> <tr> <td>VLLW</td> <td>No</td> <td>No</td> </tr> <tr> <td>LLW</td> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>ILW</td> <td>No</td> <td>No</td> </tr> <tr> <td>HLW</td> <td>No</td> <td>No</td> </tr> </tbody> </table> | Waste Class | Actual | Planned | VLLW | No | No | LLW | Yes | Yes | ILW | No | No | HLW | No | No | |
| Waste Class | Actual | Planned | | | | | | | | | | | | | | |
| VLLW | No | No | | | | | | | | | | | | | | |
| LLW | Yes | Yes | | | | | | | | | | | | | | |
| ILW | No | No | | | | | | | | | | | | | | |
| HLW | No | No | | | | | | | | | | | | | | |
| Type: | Treatment, Conditioning | | | | | | | | | | | | | | | |
| Year opened: | 1973 | | | | | | | | | | | | | | | |

Site (Structure) : AGE

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------|---|
| Facility: | CP |
| Description: | Pozo de concreto. Esta instalación esta considerada como una alternativa para la gestión de residuos sólidos de gran tamaño que por su geometría no pueden ser dispuestos en las trincheras existentes. Allí pueden encontrarse residuos históricos |

Disposal part of facility CP

The following shows disposal status for waste classes and SRS.

| Waste Class | Actual | Planned |
|-------------|--------|---------|
| VLLW | No | No |
| LLW | Yes | No |
| ILW | Yes | No |
| HLW | No | No |

| | |
|------------|----|
| List SRS? | No |
| List UMMT? | No |

| | | | |
|-------------------------|----------|------------------------|-----|
| Type: | borehole | | |
| Facility is modular? | Yes | | |
| Capacity existing (m3): | 240 | Capacity planned (m3): | 240 |

| | | | |
|------------|----|--------------|---------------------|
| Depth (m): | 10 | Host medium: | sedimentary (other) |
|------------|----|--------------|---------------------|

| Phase Name | Start Year | End Year | Estimate |
|---------------|------------|----------|----------|
| design | 1968 | 1970 | True |
| construction | 1968 | 1971 | True |
| commissioning | 1968 | 1972 | True |
| operation | 1969 | 2001 | False |

Site (Structure) : AGE

Country: ARGENTINA

Reporting Year: 2011

| | | | | | | |
|---|--|--------------------|----------------|--------------|-----------------|----------------------|
| Facility: | DS | | | | | |
| Description: | Los tambores de 200 litros conteniendo residuos provenientes de las centrales nucleares que no pudieron ser dispuestos en el sistema LLSWT han sido almacenados en contenedores maritimos. | | | | | |
| Storage part of facility | | DS | | | | |
| The following shows storage status for waste classes and SRS. | | | | | | |
| Waste Class | Actual | Planned | | | | |
| VLLW | No | No | | | | |
| LLW | Yes | No | | | | |
| ILW | No | No | | | | |
| HLW | No | No | | | | |
| List SRS? | No | | | | | |
| List UMMT? | No | | | | | |
| Capacity: | | | | | | |
| Types of Storage Units | | | | | | |
| Storage Unit Name | Type Name | Year Opened | Closed? | Full? | Modular? | Contains SRS? |
| DS | container (marine) | 1998 | No | No | No | No |

Site (Structure) : AGE

Country: ARGENTINA

Reporting Year: 2011

| Facility: | ID | | | | | | | | | | | | | | | |
|--|---|-------------|--------|---------|------|----|----|-----|-----|----|-----|----|----|-----|----|----|
| Description: | La instalación de Descontaminación se construyó dentro de otra ya existente usando mampostería y estructuras de concreto reforzado. Se emplea para descontaminar piezas pequeñas. | | | | | | | | | | | | | | | |
| <p>Processing part of facility ID</p> <p>The following shows processing status for waste classes and SRS.</p> <table border="1"> <thead> <tr> <th>Waste Class</th> <th>Actual</th> <th>Planned</th> </tr> </thead> <tbody> <tr> <td>VLLW</td> <td>No</td> <td>No</td> </tr> <tr> <td>LLW</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>ILW</td> <td>No</td> <td>No</td> </tr> <tr> <td>HLW</td> <td>No</td> <td>No</td> </tr> </tbody> </table> | | Waste Class | Actual | Planned | VLLW | No | No | LLW | Yes | No | ILW | No | No | HLW | No | No |
| Waste Class | Actual | Planned | | | | | | | | | | | | | | |
| VLLW | No | No | | | | | | | | | | | | | | |
| LLW | Yes | No | | | | | | | | | | | | | | |
| ILW | No | No | | | | | | | | | | | | | | |
| HLW | No | No | | | | | | | | | | | | | | |
| Type: | Treatment | | | | | | | | | | | | | | | |
| Year opened: | 2000 | | | | | | | | | | | | | | | |

Site (Structure) : AGE

Country: ARGENTINA

Reporting Year: 2011

| | | | | | | |
|---|--|--------------------|----------------|--------------|-----------------|----------------------|
| Facility: | IRWS | | | | | |
| Description: | Infected Radioactive Waste Storage. Es una nueva instalación licenciada en 2004 para almacenar contenedores de 50 litros conteniendo residuos infecto radiactivos. | | | | | |
| Storage part of facility | | IRWS | | | | |
| The following shows storage status for waste classes and SRS. | | | | | | |
| Waste Class | Actual | Planned | | | | |
| VLLW | No | No | | | | |
| LLW | Yes | No | | | | |
| ILW | No | No | | | | |
| HLW | No | No | | | | |
| List SRS? | No | | | | | |
| List UMMT? | No | | | | | |
| Capacity: | Posee una capacidad aproximada de 200 m3. | | | | | |
| Types of Storage Units | | | | | | |
| Storage Unit Name | Type Name | Year Opened | Closed? | Full? | Modular? | Contains SRS? |
| IRWS | building | 2004 | No | No | No | No |

Site (Structure) : AGE

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------------------------|--|
| Facility: | LLLWT |
| Description: | Existen tres trincheras de semi-contención para residuos líquidos de bajo nivel. Esta instalación se diseñó para residuos líquidos de muy bajo nivel de actividad que no eran susceptibles de ser descargados como efluentes. There are three semi-contain |
| Detailed Facility Description: | There are three semi-containment trenches for low-level liquid waste. This facility was designed for runoff from very low level of activity that were not likely to be discharged as effluent. Trench barriers consist of walls lined with bricks, bottom covered with compacted soil, cap with layers of impermeable foil (PE sheet), earth and grass, silos provided with 30 cm thick reinforced concrete side walls and bottom. |
| Facility Operation: | Drums with radioactive waste are placed into trenches and voids filled with dry and classified sand. First trench was commissioned in 1974, in 1980 coverage was applied to the first part and closure completed in 1988. The second trench was commissioned in 1989. By 2001, only one third of its capacity was covered.. Then, drums are covered in hill shaped mounds of selected highly compacted calcareous-silty soil. The compacted soil is sprayed with hot bituminous material at a 2 kg/m ² rate. A layer of fine dry sand applied on top is covered with a thoroughly welded 200 µm thick polyethylene sheet to prevent rainwater seepage. Finally, a 0.15 m thick calcareous-silty soil layer is applied and covered with 0.10 m thick wet soil suitable for grass seeding to fix the soil and restore the original landscape. |
| Financing: | Radioactive waste management is funded predominantly by fees collected from NPP operators. |

Site (Structure) : AGE

Country: ARGENTINA

Reporting Year: 2011

Disposal part of facility **LLLWT**

The following shows disposal status for waste classes and SRS.

| Waste Class | Actual | Planned |
|-------------|--------|---------|
| VLLW | No | No |
| LLW | Yes | No |
| ILW | No | No |
| HLW | No | No |

| | |
|------------|----|
| List SRS? | No |
| List UMMT? | No |

| | | | |
|-------------------------|--------------------------------|------------------------|------|
| Type: | engineered surface, trench(es) | | |
| Facility is modular? | Yes | | |
| Capacity existing (m3): | 1200 | Capacity planned (m3): | 1200 |

| | | | |
|------------|---|--------------|---------------------|
| Depth (m): | 3 | Host medium: | sedimentary (other) |
|------------|---|--------------|---------------------|

| Phase Name | Start Year | End Year | Estimate |
|---------------|------------|----------|----------|
| design | 1968 | 1970 | True |
| construction | 1968 | 1971 | True |
| commissioning | 1971 | 1971 | True |
| operation | 1971 | 2001 | False |

Comment **# 7251: LLLWT**

(ESP) El sistema comprende tres lechos de intercambio iónico formados por mezclas de suelos seleccionados con mayor proporción calcárea y de arenisca con agregado de arena para mejorar la eficiencia del proceso. Estos suelos permiten que los radionucleidos de período de semidesintegración muy cortos decaigan a niveles de actividad no significativos durante su permanencia en la masa del lecho. La capacidad operativa de cada uno de estos sistemas es de aproximadamente 2 m³. Una red interconectada de freáticos permite llevar a cabo un control periódico del agua subterránea. El sistema entró en operación en 1971. Dos unidades finalizaron sus operaciones en 1986, mientras que la tercera funcionó hasta 2001 cuando comenzó una re-evaluación de seguridad de todo el AGE. Considerando que el licenciamiento de este sistema data de 1995, todos los residuos líquidos dispuestos hasta esa fecha son considerados históricos.

Comment **# 26983: LLLWT**

(EN) The system includes three ion exchange beds consist selected soil mixtures with a higher proportion of sandstone, limestone and sand aggregate to improve process efficiency. These soils allow radionuclides of very short half-life decay to insignificant levels of activity while in the mass of the bed. The operating capacity of each of these systems is about 2 m³. An interconnected network of water meters can carry out regular monitoring of groundwater. The system became operational in 1971. Two drives ended operations in 1986, while the third worked until 2001 when he began a re-evaluation of safety of all AGE. Whereas the licensing of this system dates from 1995, all liquid wastes are willing to date considered historic.

Site (Structure) : AGE

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------------------------|--|
| Facility: | LLSWT |
| Description: | (ESP) La Trinchera N°1 fue cerrada en 1988 con residuos históricos en su interior. La Trinchera N°2 ha operado desde 1988. Se la ha licenciado para disponer residuos acondicionados en tambores de 200 litros. |
| Detailed Facility Description: | (EN) The Trench No. 1 was closed in 1988 with historical waste inside. The No.2 Trench has operated since 1988. It has been licensed to provide conditioned waste in 200 litre drums. |
| Facility Operation: | Drums with radioactive waste are placed into trenches and voids filled with dry and classified sand. First trench was commissioned in 1974, in 1980 coverage was applied to the first part and closure completed in 1988. The second trench was commissioned in 1989. By 2001, only one third of its capacity was covered.. Then, drums are covered in hill shaped mounds of selected highly compacted calcareous-silty soil. The compacted soil is sprayed with hot bituminous material at a 2 kg/m ² rate. A layer of fine dry sand applied on top is covered with a thoroughly welded 200 µm thick polyethylene sheet to prevent rainwater seepage. Finally, a 0.15 m thick calcareous-silty soil layer is applied and covered with 0.10 m thick wet soil suitable for grass seeding to fix the soil and restore the original landscape. |
| Financing: | Radioactive waste management is funded predominantly by fees collected from NPP operators. |

Site (Structure) : AGE

Country: ARGENTINA

Reporting Year: 2011

Disposal part of facility LLSWT

The following shows disposal status for waste classes and SRS.

| Waste Class | Actual | Planned |
|-------------|--------|---------|
| VLLW | No | No |
| LLW | No | Yes |
| ILW | No | No |
| HLW | No | No |

| | |
|------------|----|
| List SRS? | No |
| List UMMT? | No |

| | | | |
|-------------------------|------------|------------------------|------|
| Type: | trench(es) | | |
| Facility is modular? | Yes | | |
| Capacity existing (m3): | 1820 | Capacity planned (m3): | 1820 |

| | | | |
|------------|-----|--------------|---------------------|
| Depth (m): | 1.2 | Host medium: | sedimentary (other) |
|------------|-----|--------------|---------------------|

| Phase Name | Start Year | End Year | Estimate |
|----------------------------|------------|----------|----------|
| design | 1974 | 1988 | False |
| construction | 1974 | 1988 | False |
| operation | 1975 | 0 | False |
| EVENT: operation suspended | 2001 | 0 | False |

Comment **# 7183: LLSWT**

La primera trinchera fue construida en suelo natural sin ninguna mejora de ingeniería. La segunda trinchera se puso operativa en 1989 y sólo un tercio de su capacidad total está cubierta, se licenció en 1995, y por esta razón todos los desechos dispuestos hasta ese año son considerados históricos. La segunda trinchera fue construida en un suelo seleccionado de carácter calcáreo y de arenisca compactado al 98% de su valor máximo teórico, sosteniendo un lecho de cascote nivelado con pendiente hacia ambos lados y paredes perimetrales de 30 cm de espesor a modo de contención. El sistema de desagüe pluvial previene de la acumulación de agua de lluvia alrededor de la base de los tambores. La cobertura de la última sección de la primera trinchera así como también el del primer tercio de la segunda fue realizada usando el mismo concepto ingenieril. Las operaciones en la Trinchera N°2 han sido formalmente suspendidas desde 2001, luego de tres años de no haber colocado tambores en ella. Actualmente, se está llevando a cabo una re-evaluación de seguridad de la instalación.

Comment **# 24807: Traslado de tambores desde LLSWT a DS**

Por resolución judicial 1789 tambores ubicados en LLSWT fueron reenvasados y trasladados a contenedores marinos ubicados en el almacenamiento DS

Site (Structure) : AGE

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------|---|
| Facility: | M1 |
| Description: | Esta instalación se utiliza para almacenar residuos radiactivos sólidos de nivel medio y bajo acondicionados en tambores de 200 litros, así como fuentes de radiación decaídas (SRS). |

Storage part of facility M1

The following shows storage status for waste classes and SRS.

| Waste Class | Actual | Planned |
|-------------|--------|---------|
| VLLW | No | No |
| LLW | Yes | Yes |
| ILW | Yes | Yes |
| HLW | No | No |

| | |
|------------|-----|
| List SRS? | Yes |
| List UMMT? | No |

| | |
|------------------|---|
| Capacity: | Esta instalación se licenció en 1999. Tiene 60m de longitud, 20m de ancho y 10m de altura. El edificio cuenta con una grúa móvil con un gancho primario de 3 ton., uno secundario de 2 ton. y un sistema de ventilación controlada. |
|------------------|---|

Types of Storage Units

| Storage Unit Name | Type Name | Year Opened | Closed? | Full? | Modular? | Contains SRS? |
|-------------------|-----------|-------------|---------|-------|----------|---------------|
| M1 | building | 2000 | No | No | No | Yes |

Site (Structure) : AGE

Country: ARGENTINA

Reporting Year: 2011

| | |
|------------------------|--|
| Facility: | TN |
| Description: | La playa de recepción y maniobras fue concebida para la recepción de diferentes tipos de desechos. La playa comprende una plataforma de concreto reforzado de alrededor de 800 m2 cubierto por un tinglado parabólico, cercado por ladrillo o paredes metálica |
| Waste Packages: | Esta instalación se utiliza para almacenar residuos radiactivos líquidos (orgánicos acuosos, aceites) y sólidos húmedos (resinas, barros) generados en el Centro Atómico Ezeiza en contenedores adecuados. |

Storage part of facility **TN**

The following shows storage status for waste classes and SRS.

| Waste Class | Actual | Planned |
|-------------|--------|---------|
| VLLW | No | No |
| LLW | Yes | Yes |
| ILW | Yes | Yes |
| HLW | No | No |

| | |
|-------------------|----|
| List SRS? | No |
| List UMMT? | No |

| | |
|------------------|--|
| Capacity: | La playa fue licenciada en 1994. Hoy en día, se utiliza también como un almacenamiento temporario. |
|------------------|--|

Types of Storage Units

| Storage Unit Name | Type Name | Year Opened | Closed? | Full? | Modular? | Contains SRS? |
|-------------------|--------------|-------------|---------|-------|----------|---------------|
| TN | concrete pad | 1989 | No | No | No | No |
| TN | building | 2008 | No | No | No | No |

Site (Data) : AGE

Stock of waste as at December 2011

Country: ARGENTINA

Reporting Year: 2011

Site Name: AGE

Full Name: AREA DE GESTION DE RESIDUOS RADIOACTIVOS EZEIZA.

Inventory Reporting Date: December 2011 Waste Matrix Used: IAEA Def.

Comment # 26981: Disposal units

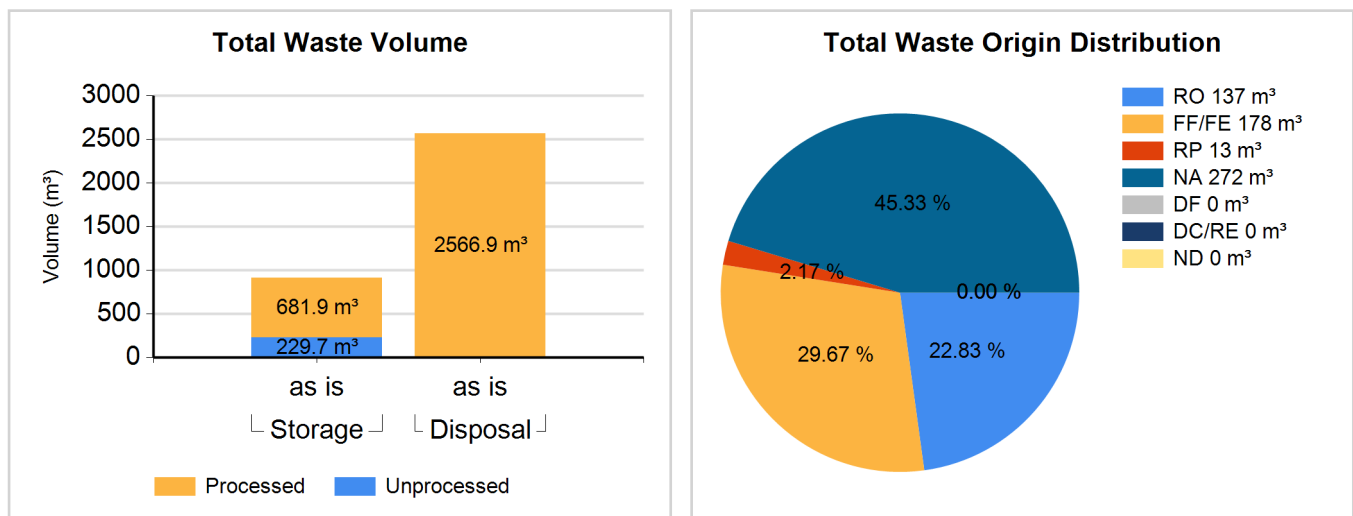
Two trenches for conditioned waste in drums and two silos for disposal of structural radioactive wastes and sealed sources.

Comment # 26984: Institutional Framework

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Waste Inventory

Est=distribution is an estimate, Proc.=Is the waste processed (Yes/No)? RO=Reactor Operations, FF/FE=Fuel Fabrication/Fuel Enrichment, RP=Reprocessing, NA=Nuclear Applications,DF=Defence, DC/RE=Decommissioning/Remediation, ND=Not Determined



Note: where volume "as dispo" is provided, volume "as is" is used in the graph instead.

Waste Class: LLW

| Waste Class Name | Location / Facility | Proc | Est | Volume "as is" (m³) | Volume "as dispo" (m³) | RO % | FF/FE % | RP % | NA % | DF % | DC/RE % | ND % |
|------------------|---------------------|------|-----|---------------------|------------------------|-------|---------|------|-------|------|---------|------|
| LLW | Storage | N | Y | 225.400 | 225.400 | 8.00 | 43.00 | 0.00 | 49.00 | 0.00 | 0.00 | 0.00 |
| LLW | Storage | Y | Y | 658.900 | 658.900 | 61.00 | 17.00 | 0.00 | 22.00 | 0.00 | 0.00 | 0.00 |
| LLW | Disposal | Y | Y | 2397.300 | 2397.300 | 66.00 | 1.00 | 0.00 | 33.00 | 0.00 | 0.00 | 0.00 |

Waste Class: ILW

| Waste Class Name | Location / Facility | Proc | Est | Volume "as is" (m³) | Volume "as dispo" (m³) | RO % | FF/FE % | RP % | NA % | DF % | DC/RE % | ND % |
|------------------|---------------------|------|-----|---------------------|------------------------|------|---------|-------|-------|------|---------|------|
| ILW | Storage | N | Y | 4.300 | 4.300 | 0.00 | 28.00 | 0.00 | 72.00 | 0.00 | 0.00 | 0.00 |
| ILW | Storage | Y | Y | 23.000 | 23.000 | 0.00 | 43.00 | 0.00 | 57.00 | 0.00 | 0.00 | 0.00 |
| ILW | Disposal | Y | Y | 169.600 | 169.600 | 2.00 | 46.00 | 13.00 | 39.00 | 0.00 | 0.00 | 0.00 |

Site (Data) : AGE

Stock of waste as at December 2011

Country: ARGENTINA

Reporting Year: 2011

Processing - Treatment method(s)

| Method | Status | | | |
|-------------------------|---------|-------------|---|---------------|
| | Planned | R&D program | Current practice method use over the last 5 years | Past Practice |
| Compaction | N | N | Same | N |
| Radionuclide Separation | N | N | Same | N |
| Solvent Extraction | Y | N | | N |

Processing - Conditioning method(s)

| Method | Status | | | |
|------------------|---------|-------------|---|---------------|
| | Planned | R&D program | Current practice method use over the last 5 years | Past Practice |
| Cementation | N | Y | | Y |
| Containerization | N | N | Same | N |
| Encapsulation | N | N | Suspended | N |
| Solidification | N | Y | | N |

Comment

7373: ACONDICIONAMIENTO FUENTES DE RADIO DE USO MEDICO

LAS FUENTES DE RADIO DE USO MEDICO FUERON ACONDICIONADAS PARA SU ALMACENAMIENTO PROLONGADO DURANTE LOS AÑOS 2001 - 2003..

Spent Sources <=30 years in Storage

| Nuclide | Number of Sources/Total Activity of Sources (GBq) | | | c | u | c | Total Activity for all Groups (GBq) | Decay Date |
|---------|---|--|-----------------------------|---|---|---|-------------------------------------|------------|
| | Group I less than or equal 4GBq | Group II more than 4GBq but less than or equal 4E+4GBq | Group III more than 4E+4GBq | | | | | |
| | num/activity | num/activity | num/activity | | | | | |
| Cd-109 | 1 | | | N | Y | Y | 7.170E-006 | 2011.12 |
| | 7.170E-006 | | | | | | | |
| Cf-252 | 9 | | | N | Y | Y | 5.920E-002 | 2011.12 |
| | 5.920E-002 | | | | | | | |
| Cf-252 | 1 | | | N | Y | Y | 7.100E-001 | 2011.12 |
| | 7.100E-001 | | | | | | | |
| Cm-244 | | 1 | | N | Y | Y | 7.100E+000 | 2011.12 |
| | | 7.100E+000 | | | | | | |
| Co-57 | 6 | | | N | Y | Y | 3.540E-008 | 2011.12 |
| | 3.540E-008 | | | | | | | |

Site (Data) : AGE

Stock of waste as at December 2011

Country: ARGENTINA

Reporting Year: 2011

| | | | | | | | | |
|--------|------------|------------|------------|---|---|---|------------|---------|
| Co-60 | | 132 | | N | Y | Y | 3.610E+010 | 2011.12 |
| | | 3.610E+010 | | | | | | |
| Co-60 | | 9 | 11 | N | Y | Y | 9.670E+005 | 2011.12 |
| | | 3.000E+005 | 6.670E+005 | | | | | |
| Co-60 | | 7 | | N | Y | Y | 3.220E+002 | 2011.12 |
| | | 3.220E+002 | | | | | | |
| Co-60 | 43 | | | Y | N | Y | 1.530E-001 | 2011.12 |
| | 1.530E-001 | | | | | | | |
| Co-60 | 249 | | | N | Y | Y | 7.600E+000 | 2011.12 |
| | 7.600E+000 | | | | | | | |
| Co-60 | 37 | 6 | | N | Y | Y | 5.340E+001 | 2011.12 |
| | 2.030E+001 | 3.310E+001 | | | | | | |
| Cs-137 | 380 | | | N | Y | Y | 9.260E-001 | 2011.12 |
| | 9.260E-001 | | | | | | | |
| Cs-137 | 174 | 179 | | N | Y | Y | 3.538E+003 | 2011.12 |
| | 1.243E+001 | 3.526E+003 | | | | | | |
| Cs-137 | | 6 | | N | Y | Y | 1.210E+005 | 2011.12 |
| | | 1.210E+005 | | | | | | |
| Cs-137 | | 9 | | N | Y | Y | 1.360E+003 | 2011.12 |
| | | 1.360E+003 | | | | | | |
| Cs-137 | 2 | | | Y | N | Y | 7.540E+000 | 2011.12 |
| | 7.540E+000 | | | | | | | |
| Cs-137 | 40 | | | Y | N | Y | 9.850E+000 | 2011.12 |
| | 9.850E+000 | | | | | | | |
| Cs-137 | 64 | 45 | | Y | N | Y | 1.074E+003 | 2011.12 |
| | 1.117E+002 | 9.627E+002 | | | | | | |
| Cs-137 | | | 1 | N | Y | Y | 1.680E+005 | 2011.12 |
| | | | 1.680E+005 | | | | | |
| Fe-55 | 24 | | | N | Y | Y | 2.740E+000 | 2011.12 |
| | 2.740E+000 | | | | | | | |

Site (Data) : AGE

Stock of waste as at December 2011

Country: ARGENTINA

Reporting Year: 2011

| | | | | | | | | |
|--------|------------|------------|--|---|---|---|------------|---------|
| Gd-153 | 1 | | | N | Y | Y | 7.300E-002 | 2011.12 |
| | 7.300E-002 | | | | | | | |
| Ge-68 | 8 | | | N | Y | Y | 1.030E-001 | 2011.12 |
| | 1.030E-001 | | | | | | | |
| H-3 | 20 | 2 | | N | Y | Y | 1.613E+004 | 2011.12 |
| | 2.540E+001 | 1.610E+004 | | | | | | |
| I-125 | 926 | | | N | Y | Y | 1.640E+000 | 2011.12 |
| | 1.640E+000 | | | | | | | |
| Ir-192 | 3 | | | N | Y | Y | 1.350E+000 | 2011.12 |
| | 1.350E+000 | | | | | | | |
| Ir-192 | 229 | 231 | | N | Y | Y | 6.041E+001 | 2011.12 |
| | 6.810E-003 | 6.040E+001 | | | | | | |
| Kr-85 | 70 | 63 | | N | Y | Y | 7.996E+003 | 2011.12 |
| | 4.630E+001 | 7.950E+003 | | | | | | |
| Na-22 | 2 | | | N | Y | Y | 1.250E-003 | 2011.12 |
| | 1.250E-003 | | | | | | | |
| Pm-147 | 4 | | | Y | N | Y | 3.520E-001 | 2011.12 |
| | 3.520E-001 | | | | | | | |
| Pm-147 | 21 | | | N | Y | Y | 3.290E+000 | 2011.12 |
| | 3.290E+000 | | | | | | | |
| Sr-90 | 162 | | | N | Y | Y | 1.010E+001 | 2011.12 |
| | 1.010E+001 | | | | | | | |
| Sr-90 | | 1 | | N | Y | Y | 1.211E+003 | 2011.12 |
| | | 1.211E+003 | | | | | | |
| Sr-90 | | 4 | | N | Y | Y | 2.610E+002 | 2011.12 |
| | | 2.610E+002 | | | | | | |

Spent Sources > 30 years in Storage

| Number of Sources/Total Activity of Sources (GBq) | |
|---|-------------------------|
| Group I less than or equal 2 GBq | Group II more than 2GBq |

Site (Data) : AGE

Stock of waste as at December 2011

Country: ARGENTINA

Reporting Year: 2011

| Nuclide | num/activity | num/activity | c | u | c | Total Activity for | Decay Date |
|---------|--------------|--------------|---|---|---|--------------------|------------|
| Am-241 | 32 | 37 | N | Y | Y | 5.651E+002 | 2011.12 |
| | 3.910E+001 | 5.260E+002 | | | | | |
| Am-241 | 3 | | N | Y | Y | 1.090E+000 | 2011.12 |
| | 1.090E+000 | | | | | | |
| Am-241 | 9 | 177 | N | Y | Y | 1.400E+003 | 2011.12 |
| | 9.630E+000 | 1.390E+003 | | | | | |
| Am-241 | 4923 | | N | Y | Y | 6.400E+003 | 2011.12 |
| | 6.400E+003 | | | | | | |
| Am-241 | 22 | | Y | N | Y | 3.990E-001 | 2011.12 |
| | 3.990E-001 | | | | | | |
| Am-241 | | 2 | N | Y | Y | 2.160E+003 | 2011.12 |
| | | 2.160E+003 | | | | | |
| Am-241 | | 1 | N | Y | Y | 1.100E+002 | 2011.12 |
| | | 1.100E+002 | | | | | |
| Am-241 | | 3 | Y | N | Y | 9.380E+002 | 2011.12 |
| | | 9.380E+002 | | | | | |
| Am-241 | | 7 | Y | N | Y | 1.300E+002 | 2011.12 |
| | | 1.300E+002 | | | | | |
| Am-241 | | 2 | N | Y | Y | 2.500E+003 | 2011.12 |
| | | 2.500E+003 | | | | | |
| Am-241 | | 17 | N | Y | Y | 2.600E+003 | 2011.12 |
| | | 2.600E+003 | | | | | |
| Ni-63 | 86 | 12 | N | Y | Y | 9.580E+001 | 2011.12 |
| | 3.380E+001 | 6.200E+001 | | | | | |
| Pu-238 | 1 | | N | Y | Y | 9.000E-001 | 2011.12 |
| | 9.000E-001 | | | | | | |
| Pu-238 | | 1 | N | Y | Y | 6.960E+001 | 2011.12 |
| | | 6.960E+001 | | | | | |

Site (Data) : AGE

Stock of waste as at December 2011

Country: ARGENTINA

Reporting Year: 2011

| | | | | | | | |
|--------|------------|------------|---|---|---|------------|---------|
| Ra-226 | 97 | 1 | N | Y | Y | 6.240E+001 | 2011.12 |
| | 5.500E+001 | 7.400E+000 | | | | | |
| Ra-226 | 731 | | Y | N | Y | 2.300E+002 | 2011.12 |
| | 2.300E+002 | | | | | | |
| Ra-226 | 84 | | Y | N | Y | 8.200E+000 | 2011.12 |
| | 8.200E+000 | | | | | | |
| Ra-226 | 151 | | N | Y | Y | 7.430E+000 | 2011.12 |
| | 7.430E+000 | | | | | | |

Site (Structure) : CNA I

Country: ARGENTINA

Reporting Year: 2011

Full Name: CENTRAL NUCLEAR ATUCHA I
ATUCHA I NUCLEAR POWER PLANT

Description: Atucha I Nuclear power plant has an installed power capacity of 357 MW(e).
It is located on Paraná river shore, in Lima, Buenos Aires Province.

Official Website:

License Holder(s): Ing. Luis Enrique Olivieri
Since July 2010

Comment # 25544:

Atucha I works with a Siemens pressure vessel reactor (PHWR), uses heavy water as moderator and coolant and natural or poorly enriched (up to 0.85%) Uranium.

Waste management facilities that are located at this site:

| | | |
|--|---|----------------|
| Facility: | CEMENT | |
| Description: | The purpose of this facility is to immobilize by cementation the evaporator concentrate, the tank cleaning sludge, liquid wastes from decontamination, and non-compactable and structural solid wastes. | |
| Processing part of facility | CEMENT | |
| The following shows processing status for waste classes and SRS. | | |
| Waste Class | Actual | Planned |
| VLLW | No | No |
| LLW | Yes | No |
| ILW | No | No |
| HLW | No | No |
| Type: | Conditioning | |
| Year opened: | 1992 | |
| Comment | # 9937: CEMENTACIÓN | |
| The facility was designed only for low-level wastes. It includes storage and feeding tanks, having a homogenization and sampling system of liquid and sludge waste to be cemented. The immobilization system comprises a reusable blade vertical mixer that allows liquid waste in-drum cementation. | | |

Site (Structure) : CNA I

Country: ARGENTINA

Reporting Year: 2011

| | | | |
|--|---|------------------|--|
| Facility: | COMPACTOR | | |
| Description: | The Compaction System comprises a 16 t hydraulic press, installed on a bay located in the controlled zone inside the reactor building. Compactable solid wastes are collected in plastic bags and compacted in 200 liter drums. | | |
| Processing part of facility | | COMPACTOR | |
| The following shows processing status for waste classes and SRS. | | | |
| Waste Class | Actual | Planned | |
| VLLW | No | No | |
| LLW | Yes | No | |
| ILW | No | No | |
| HLW | No | No | |
| Type: | Treatment, Conditioning | | |
| Year opened: | 1974 | | |

Site (Structure) : CNA I

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------|--|
| Facility: | DRUMS |
| Description: | This facility located inside Atucha I nuclear power plant is used to store 200 liters drums with treated and conditioned solid and liquid low level radioactive waste. |

Storage part of facility**DRUMS**

The following shows storage status for waste classes and SRS.

| Waste Class | Actual | Planned |
|-------------|--------|---------|
| VLLW | No | No |
| LLW | Yes | No |
| ILW | No | No |
| HLW | No | No |

| | |
|------------|----|
| List SRS? | No |
| List UMMT? | No |

| | |
|-----------|--|
| Capacity: | |
|-----------|--|

Types of Storage Units

| Storage Unit Name | Type Name | Year Opened | Closed? | Full? | Modular? | Contains SRS? |
|-------------------|-----------|-------------|---------|-------|----------|---------------|
| DRUMS | building | 0 | No | No | No | No |

Comment **# 9932: ALMACENAMIENTO DE TAMBORES**

The following waste types are stored in this facility:

- a) Concentrates and sludge from the cleanup of tanks are immobilized in cement matrices and conditioned in 200-liter drums.
 b) The treatment of compactable solid radioactive waste generated in the operation and maintenance activities, consists of reducing the waste volume by compressing it into 200-liter drums. c) Non-compactable solid waste that are immobilized in cement matrixes and conditioned in 200-liter drums.

Site (Structure) : CNA I

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------|--|
| Facility: | EVAPORATOR |
| Description: | A Decanting/Separator System is used to separate residual waters from solids suspended in the liquid. The system makes the necessary controls to convey the residual waters to the discharge system or to the concentration by evaporation system. |

Processing part of facility EVAPORATOR

The following shows processing status for waste classes and SRS.

| Waste Class | Actual | Planned |
|-------------|--------|---------|
| VLLW | No | No |
| LLW | Yes | No |
| ILW | No | No |
| HLW | No | No |

| | |
|---------------------|-----------|
| Type: | Treatment |
| Year opened: | 1974 |

Comment # 9936: EVAPORADOR

Purified water is collected in control tanks where its activity concentration is checked. If the value is lower than the limits set forth in the Operating license, the liquids are eliminated as controlled and scheduled radioactive discharges into the Paraná de las Palmas River. If the value is higher than the permitted limit, the water is returned to the collecting tanks for evaporation treatment.

Site (Structure) : CNA I

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------|--|
| Facility: | FILTERS |
| Description: | It is an underground storage used to store spent mechanical filters from the primary circuit of the reactor. |

Storage part of facility FILTERS

The following shows storage status for waste classes and SRS.

| Waste Class | Actual | Planned |
|-------------|--------|---------|
| VLLW | No | No |
| LLW | Yes | No |
| ILW | No | No |
| HLW | No | No |

| | |
|------------|----|
| List SRS? | No |
| List UMMT? | No |

| | |
|------------------|------------------------------------|
| Capacity: | There are 8 pits of 3 m3 each one. |
|------------------|------------------------------------|

Types of Storage Units

| Storage Unit Name | Type Name | Year Opened | Closed? | Full? | Modular? | Contains SRS? |
|-------------------|-----------|-------------|---------|-------|----------|---------------|
| FILTERS | pit | 1974 | No | No | Yes | No |

Site (Structure) : CNA I

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------|--|
| Facility: | RESINS 1 |
| Description: | Spent ion exchange resin beds from the primary system of water cooling purification are stored in tanks inside Atucha I nuclear power plant. |

Storage part of facility**RESINS 1**

The following shows storage status for waste classes and SRS.

| Waste Class | Actual | Planned |
|-------------|--------|---------|
| VLLW | No | No |
| LLW | Yes | No |
| ILW | No | No |
| HLW | No | No |

| | |
|-------------------|----|
| List SRS? | No |
| List UMMT? | No |

| | |
|------------------|---|
| Capacity: | There are four tanks, two of 15 m3 and two of 9 m3. |
|------------------|---|

Types of Storage Units

| Storage Unit Name | Type Name | Year Opened | Closed? | Full? | Modular? | Contains SRS? |
|-------------------|------------------------|-------------|---------|-------|----------|---------------|
| RESINS 1 | tank (stainless steel) | 1974 | No | No | Yes | No |

Site (Structure) : CNA I

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------|---|
| Facility: | RESINS 2 |
| Description: | This facility has been used to free the tanks with spent ion exchange resin beds. |

Storage part of facility**RESINS 2**

The following shows storage status for waste classes and SRS.

| Waste Class | Actual | Planned |
|-------------|--------|---------|
| VLLW | No | No |
| LLW | Yes | No |
| ILW | No | No |
| HLW | No | No |

| | |
|------------|----|
| List SRS? | No |
| List UMMT? | No |

| | |
|------------------|---------------------------------------|
| Capacity: | This facility has a capacity of 46 m3 |
|------------------|---------------------------------------|

Types of Storage Units

| Storage Unit Name | Type Name | Year Opened | Closed? | Full? | Modular? | Contains SRS? |
|-------------------|-----------|-------------|---------|-------|----------|---------------|
| RESINS 2 | well | 1974 | No | No | No | No |

Site (Structure) : CNA I

Country: ARGENTINA

Reporting Year: 2011

| | | | |
|--|--|------------------|--|
| Facility: | TR SYSTEM | | |
| Description: | The function of the System (TR) is to collect all residual waters produced in the controlled area. The system includes four 10 m3 tanks located in the reactor building. | | |
| Processing part of facility | | TR SYSTEM | |
| The following shows processing status for waste classes and SRS. | | | |
| Waste Class | Actual | Planned | |
| VLLW | No | No | |
| LLW | Yes | No | |
| ILW | No | No | |
| HLW | No | No | |
| Type: | Treatment | | |
| Year opened: | 1974 | | |

Site (Data) : CNA I

Stock of waste as at December 2011

Country: ARGENTINA

Reporting Year: 2011

Site Name: CNA IFull Name: CENTRAL NUCLEAR ATUCHA I
ATUCHA I NUCLEAR POWER PLANT

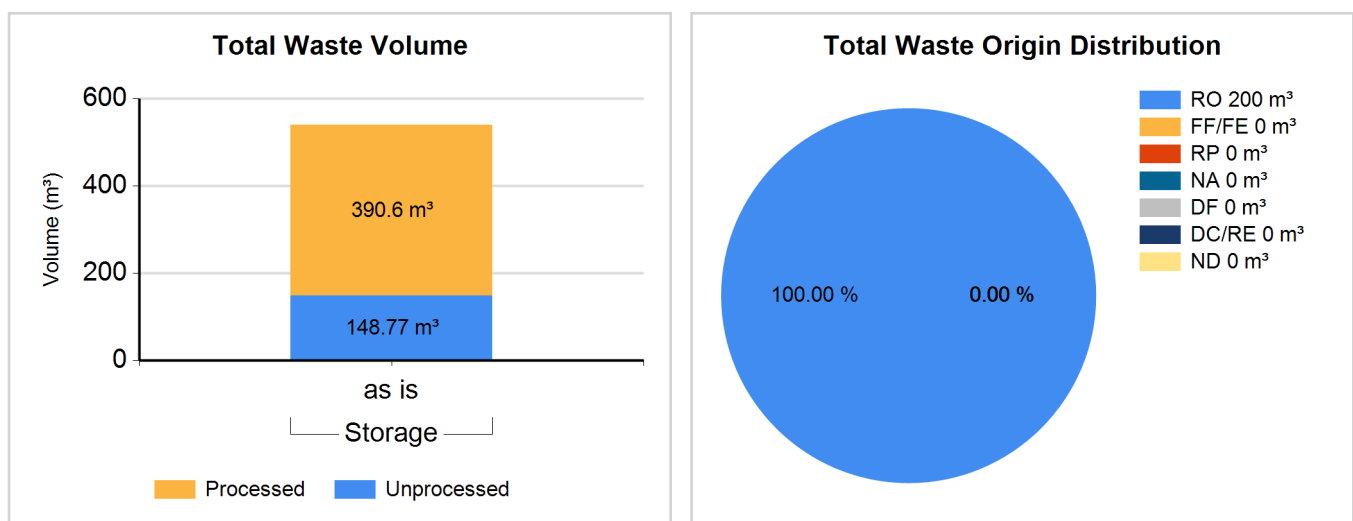
Inventory Reporting Date: December 2011 Waste Matrix Used: IAEA Def.

Comment # 25544:

Atucha I works with a Siemens pressure vessel reactor (PHWR), uses heavy water as moderator and coolant and natural or poorly enriched (up to 0.85%) Uranium.

Waste Inventory

Est=distribution is an estimate, Proc.=Is the waste processed (Yes/No)? RO=Reactor Operations, FF/FE=Fuel Fabrication/Fuel Enrichment, RP=Reprocessing, NA=Nuclear Applications,DF=Defence, DC/RE=Decommissioning/Remediation, ND=Not Determined



Note: where volume "as dispo" is provided, volume "as is" is used in the graph instead.

Waste Class: LLW

| Waste Class Name | Location / Facility | Proc | Est. | Volume "as is" (m³) | Volume "as dispo" (m³) | RO % | FF/FE % | RP % | NA % | DF % | DC/RE % | ND % |
|------------------|---------------------|------|------|---------------------|------------------------|--------|---------|------|------|------|---------|------|
| LLW | Storage | N | N | 148.770 | 148.770 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| LLW | Storage | Y | N | 390.600 | 390.600 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Processing - Treatment method(s)

| Method | Status | | | |
|--------------|---------|-------------|---|---------------|
| | Planned | R&D program | Current practice method use over the last 5 years | Past Practice |
| Compaction | N | N | Same | N |
| Evaporation | N | N | Same | N |
| Filtration | N | N | Same | N |
| Ion Exchange | N | N | Same | N |

Site (Data) : CNA I

Stock of waste as at December 2011

Country: ARGENTINA

Reporting Year: 2011

Processing - Conditioning method(s)

| Method | Status | | | |
|-------------|---------|-------------|---|---------------|
| | Planned | R&D program | Current practice method use over the last 5 years | Past Practice |
| Cementation | N | N | Same | N |

Site (Structure) : CNE

Country: ARGENTINA

Reporting Year: 2011

Full Name: CENTRAL NUCLEAR EMBALSE
EMBALSE NUCLEAR POWER PLANT

Description: Embalse Nuclear Power Plant has an installed capacity of 648 MWe. It is located on the southern shore of Rio Tercero river, in Cordoba province.

Official Website:

License Holder(s): Ing. Gustavo Ernesto Montanari
Since July 2010

Comment # 25545:

Embalse works with a CANDU type reactor (lark type with pressure tubes), uses heavy water as moderator and coolant. It burns natural uranium.

Waste management facilities that are located at this site:

| Facility: | COMPACTOR | | | | | | | | | | | | | | | |
|---|--|-------------|--------|---------|------|----|----|-----|-----|----|-----|----|----|-----|----|----|
| Description: | There is an area in the reactor building controlled zone housing with a 16-ton capacity hydraulic press. | | | | | | | | | | | | | | | |
| <p>Processing part of facility COMPACTOR</p> <p>The following shows processing status for waste classes and SRS.</p> <table border="1"> <thead> <tr> <th>Waste Class</th> <th>Actual</th> <th>Planned</th> </tr> </thead> <tbody> <tr> <td>VLLW</td> <td>No</td> <td>No</td> </tr> <tr> <td>LLW</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>ILW</td> <td>No</td> <td>No</td> </tr> <tr> <td>HLW</td> <td>No</td> <td>No</td> </tr> </tbody> </table> | | Waste Class | Actual | Planned | VLLW | No | No | LLW | Yes | No | ILW | No | No | HLW | No | No |
| Waste Class | Actual | Planned | | | | | | | | | | | | | | |
| VLLW | No | No | | | | | | | | | | | | | | |
| LLW | Yes | No | | | | | | | | | | | | | | |
| ILW | No | No | | | | | | | | | | | | | | |
| HLW | No | No | | | | | | | | | | | | | | |
| Type: | Treatment | | | | | | | | | | | | | | | |
| Year opened: | 1984 | | | | | | | | | | | | | | | |

Site (Structure) : CNE

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------|---|
| Facility: | DRUMS |
| Description: | This facility located inside Embalse nuclear power plant is used to store 200 liters drums. |

Storage part of facility**DRUMS**

The following shows storage status for waste classes and SRS.

| Waste Class | Actual | Planned |
|-------------|--------|---------|
| VLLW | No | No |
| LLW | Yes | No |
| ILW | No | No |
| HLW | No | No |

| | |
|------------|----|
| List SRS? | No |
| List UMMT? | No |

| | |
|-----------|--|
| Capacity: | |
|-----------|--|

Types of Storage Units

| Storage Unit Name | Type Name | Year Opened | Closed? | Full? | Modular? | Contains SRS? |
|-------------------|-----------|-------------|---------|-------|----------|---------------|
| DRUMS | building | 1995 | No | No | No | No |

Comment **# 9933: DRUMS STORAGE**

Treatment and conditioning practices, such as compacting of solid compactable wastes and immobilization in cement matrixes of non-compactable solids are performed at Embalse Nuclear Power Plant.

Site (Structure) : CNE

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------|--|
| Facility: | FILTERS |
| Description: | Storage for the spent filters generated in the nuclear power plant along the whole life cycle. |

Storage part of facility**FILTERS**

The following shows storage status for waste classes and SRS.

| Waste Class | Actual | Planned |
|-------------|--------|---------|
| VLLW | No | No |
| LLW | Yes | No |
| ILW | No | No |
| HLW | No | No |

| | |
|------------|----|
| List SRS? | No |
| List UMMT? | No |

| | |
|------------------|---|
| Capacity: | The storage facility for purification filters is located in an approximately 50 m x 50 m elevated area located some 250 meters from the service building. |
|------------------|---|

Types of Storage Units

| Storage Unit Name | Type Name | Year Opened | Closed? | Full? | Modular? | Contains SRS? |
|-------------------|-----------|-------------|---------|-------|----------|---------------|
| FILTERS | building | 1984 | No | No | No | No |

Comment **# 9938: ALMACENAMIENTO DE FILTROS**

Underground containment structures include concrete cubicles and cylindrical pits with steel lined concrete walls. The drainage characteristics of the elevated facility are such that the level of the lowest points of the storage cubicles are above the estimated highest level of the groundwater table.

Concrete storage cubicles are divided into separate cells where low-level wastes are stored. Cylindrical vertical cavities (i.e., boreholes) are used to store intermediate-level waste purification mechanical filters.

The original design comprises a concrete cubicle made of five aligned cells with a depth of 3 m and a cross section of 3 m x 3 m, and five concrete cylindrical pits with a diameter of 1 m and a depth of 4.4 m. The capacity is adequate to contain all solid radioactive wastes produced during the power plant useful life. Nevertheless, the facility allows expansion of the concrete containment structures to store all solid radioactive wastes that could be additionally generated.

Site (Structure) : CNE

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------------|--|
| Facility: | RESINS |
| Description: | Spent ion exchange resin beds are stored in tanks. |

Storage part of facility**RESINS**

The following shows storage status for waste classes and SRS.

| Waste Class | Actual | Planned |
|-------------|--------|---------|
| VLLW | No | No |
| LLW | Yes | No |
| ILW | No | No |
| HLW | No | No |

| | |
|------------|----|
| List SRS? | No |
| List UMMT? | No |

| | |
|------------------|---|
| Capacity: | There are two tanks of 260 m3 each one. |
|------------------|---|

Types of Storage Units

| Storage Unit Name | Type Name | Year Opened | Closed? | Full? | Modular? | Contains SRS? |
|-------------------|-----------------|-------------|---------|-------|----------|---------------|
| RESINS | tank (concrete) | 1984 | No | No | Yes | No |

Comment **# 9934: ALMACENAMIENTO DE RESINAS**

At CNE, liquid radioactive waste originating in the operation and maintenance activities are treated by ion exchange resin beds, with subsequent discharge into the environment of the treated effluent.

Site (Data) : CNE

Stock of waste as at December 2011

Country: ARGENTINA

Reporting Year: 2011

Site Name: CNEFull Name: CENTRAL NUCLEAR EMBALSE
EMBALSE NUCLEAR POWER PLANT

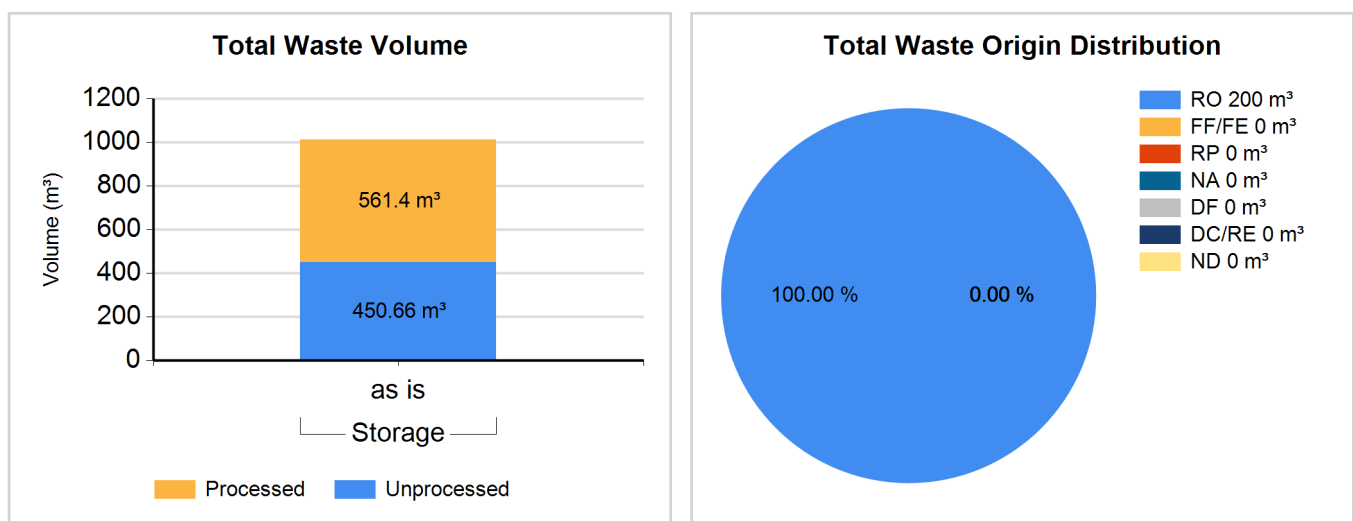
Inventory Reporting Date: December 2011 Waste Matrix Used: IAEA Def.

Comment # 25545:

Embalse works with a CANDU type reactor (lark type with pressure tubes), uses heavy water as moderator and coolant. It burns natural uranium.

Waste Inventory

Est=distribution is an estimate, Proc.=Is the waste processed (Yes/No)? RO=Reactor Operations, FF/FE=Fuel Fabrication/Fuel Enrichment, RP=Reprocessing, NA=Nuclear Applications,DF=Defence, DC/RE=Decommissioning/Remediation, ND=Not Determined



Note: where volume "as dispo" is provided, volume "as is" is used in the graph instead.

Waste Class: LLW

| Waste Class Name | Location / Facility | Proc | Est. | Volume "as is" (m³) | Volume "as dispo" (m³) | RO % | FF/FE % | RP % | NA % | DF % | DC/RE % | ND % |
|------------------|---------------------|------|------|---------------------|------------------------|--------|---------|------|------|------|---------|------|
| LLW | Storage | N | N | 450.660 | 450.660 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| LLW | Storage | Y | N | 561.400 | 561.400 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Processing - Treatment method(s)

| Method | Status | | | |
|--------------|---------|-------------|---|---------------|
| | Planned | R&D program | Current practice method use over the last 5 years | Past Practice |
| Compaction | N | N | Same | N |
| Ion Exchange | N | N | Same | N |

Regulators

Country: ARGENTINA

Reporting Year: 2011

| | |
|---------------|---|
| Name: | ARN |
| Full Name: | Autoridad Regulatoria Nuclear. (Nuclear Regulatory Authority). |
| Divison: | |
| City or Town: | Buenos Aires |
| Main Website: | |

Regulations / Laws

Country: ARGENTINA

Reporting Year: 2011

| | | | |
|---------------------------------|--|-----|--|
| Name: | LNAN | | |
| Title or Name: | LEY NACIONAL DE ACTIVIDAD NUCLEAR (National Law of Nuclear Activiy) | | |
| Reference Number: | 24804 | | |
| Date Promulgated or Proclaimed: | 4/23/1997 | Law | |

Attachment **#149: Regulation**

LNAN.doc

This document contains the text of the National Law of Nuclear Activity (Spanish version) for Argentina.

| | | | |
|---------------------------------|--|-----|--|
| Name: | RGRR | | |
| Title or Name: | REGIMEN DE GESTION DE RESIDUOS RADIATIVOS (Radioactive Waste Management Regimen). | | |
| Reference Number: | 25018 | | |
| Date Promulgated or Proclaimed: | 10/19/1998 | Law | |

Attachment **#150: Regulation**

RGRR.doc

This document contains the text of the National Law of Radioactive Waste Management Regimen for Argentina (Spanish Version) .

| | | | |
|---------------------------------|--|------------|--|
| Name: | AR 10.12.1 | | |
| Title or Name: | Gestion de Residuos Radiactivos. (Radioactive Waste Management) | | |
| Reference Number: | ARN 29/99 | | |
| Date Promulgated or Proclaimed: | 12/1/1999 | Regulation | |

Attachment **#147: Regulation**

10-12-1R0.pdf

The objective of this document is to establish general requirements for the management of radioactive wastes, taking into account the protection of human health and the environment for both present and future generations.

Policies

Country: ARGENTINA

Reporting Year: 2011

National Systems

| | Policy | (Yes;Partially;No) |
|--|--------|--------------------|
|--|--------|--------------------|

| | | |
|-----|--|-----|
| Q14 | Has your Country implemented a national policy for radioactive waste management? | Yes |
|-----|--|-----|

Attachment #831: Questionnaire

Estructura Orgánica del PROGRAMA NACIONAL DE GESTION DE.doc

LA ESTRUCTURA DEL PROGRAMA NACIONAL DE RESIDUOS RADIATIVOS FUE ESTABLECIDA POR LA COMISION NACIONAL DE ENERGIA ATOMICA EL 2003-02-27, DE ACUERDO CON LA LEY NACIONAL DE RESIDUOS RACIACTIVOS.

| | Strategies | (Yes;Partially;No) |
|--|------------|--------------------|
|--|------------|--------------------|

| | | |
|-----|---|-----|
| Q15 | Has your country developed strategies to implement a national policy? | Yes |
|-----|---|-----|

| | Requirements | (Yes;Partially;No) |
|--|--------------|--------------------|
|--|--------------|--------------------|

| | | |
|-----|---|-----------|
| Q17 | identified the parties involved in the different steps of radioactive waste management | Yes |
| Q18 | specified a rational set of safety, radiological and environmental protection objectives | Yes |
| Q19 | implemented a mechanism to identify existing and anticipated radioactive wastes | Yes |
| Q20 | implemented controls over radioactive waste generation | Yes |
| Q21 | identified available methods and facilities to process, store and dispose of radioactive waste on an appropriate time-scale | Yes |
| Q22 | taken into account interdependencies among all steps in radioactive waste generation and management | Yes |
| Q23 | implemented appropriate research and development to support the operational and regulatory needs | Yes |
| Q24 | implemented a funding structure and the allocation of resources that are essential for radioactive waste management | Partially |
| Q25 | implemented formal mechanisms for disseminating information to the public and for public consultation | No |

Policies

Country: ARGENTINA

Reporting Year: 2011

| Responsibilities | | (Complete;Incomplete) |
|------------------|---|-----------------------|
| Q28 | establish and implement a legal framework for the management of radioactive waste | Complete |
| Q29 | establish or designate a regulatory body that has the responsibility for carrying out the regulatory function with regard to safety and the protection of human health and the environment. | Complete |
| Q30 | define the responsibilities of waste generators and operators of waste management facilities | Complete |
| Q31 | provide for adequate resources | Incomplete |
| Q33 | enforce compliance with regulatory requirements | Complete |
| Q34 | implement the licensing process | Complete |
| Q35 | advise the government | Complete |
| Q37 | identify an acceptable destination for the radioactive waste | Complete |
| Q114 | comply with legal requirements | Complete |

Comment

7270: RESPONSABILIDADES

Las responsabilidades de los generadores de residuos y operadores de instalaciones de gestión de residuos radiactivos han sido establecidas por la Autoridad Regulatoria Nuclear en la norma AR.10.12.1.

| Activities | | (Yes;Partially;No) |
|------------|--|--------------------|
| Q43 | perform safety and environmental impact assessments for radioactive waste management facilities | Yes |
| Q44 | ensure adequate radiation protection for workers, the general public and the environment | Yes |
| Q45 | ensure suitable staff, equipment, facilities, training and operating procedures are available to perform the safe radioactive waste management steps | Yes |
| Q46 | establish and implement a quality assurance programme for the radioactive waste generated or its processing, storage and disposal | Yes |
| Q47 | establish and keep records of appropriate information regarding the generation, processing, storage and disposal of radioactive waste, including an inventory of radioactive waste | Yes |
| Q48 | provide surveillance and control of activities involving radioactive waste as required by the regulatory body | Yes |
| Q49 | collect, analyze and, as appropriate, share operational experience to ensure continued safety improvements in radioactive waste management | Yes |
| Q50 | conduct or otherwise ensure appropriate research and development to support operational needs in radioactive waste management | Yes |

| Clearance | | (Yes;No) |
|-----------|---|----------|
| Q128 | Does your country have "clearly defined clearance levels based on radiological criteria, with policy statements that material below those levels can be recycled or disposed of with non-radioactive wastes"? | Yes |
| Q129 | Has your country ever used a "case-by-case" approach to clearing radioactive wastes (excluding spent/disused sealed radioactive sources)? | Yes |
| Q130 | Has your country ever used clearance levels to dispose of, reuse or recycle radioactive waste as non-radioactive waste or as a non-radioactive resource (excluding spent/disused sealed radioactive sources)? | No |

Policies

Country: ARGENTINA

Reporting Year: 2011

Disposal Facilities

| Licensing | | (Yes - All;Yes - Some;No) |
|--------------|--|---------------------------|
| Q53 | Environmental Assessment (EA) | Yes - Some |
| Q54 | Environmental Impact Statement (EIS) | Yes - Some |
| Q55 | Performance Assessment (PA) | Yes - Some |
| Q56 | Quality Assurance (QA) | Yes - All |
| Q57 | Safety Assessment (SA) | Yes - All |
| Q59 | If Quality Assurance is part of your Country's current, waste disposal facility licensing policy, does the QA Program conform to international standards (such as the ISO9000 series)? | Yes - All |
| Operation | | (Yes - All;Yes - Some;No) |
| Q60 | Does your Country have formal, documented waste acceptance criteria for its operating or proposed disposal facilities? | Yes - Some |
| Post-Closure | | (Yes;No) |
| Q61 | Does your Country have any written policies to address the maintenance of records that describe the design, location and inventory of waste disposal facilities? | Yes |
| Q62 | If the answer to the previous question was YES, does your Country have any policies, laws or regulations that prescribe what records are to be maintained? | Yes |
| Q63 | Does your Country have any written policies to address active institutional controls or passive institutional controls, such as monitoring or access restrictions? | Yes |
| Q65 | access restrictions | Yes |
| Q66 | drainage and/or leachate collection system(s) | No |
| Q67 | leachate treatment systems | No |
| Q68 | environmental monitoring | Yes |
| Q69 | facility monitoring | Yes |
| Q70 | surveillance | Yes |
| Q71 | plans for intervention measures during active institutional control if there is an unplanned release of radioactive materials from the disposal facility | Yes |

Policies

Country: ARGENTINA

Reporting Year: 2011

Processing/Storage

| Policies/Procedures | | (Yes;No) |
|----------------------------|--|-----------------|
| Q73 | waste sorting/segregation | Yes |
| Q74 | waste minimization | Yes |
| Q75 | waste storage | Yes |
| Q76 | processing and/or storing and/or disposing of nuclear fuel cycle waste separately from non-nuclear fuel cycle waste (also known as nuclear applications waste) | No |
| Q78 | Does your country have any legislation, regulation, or policy that waste processing must take place prior to storage (see following note) | No |
| Implementation | | (Yes;No) |
| Q80 | In your Country are there any waste processing facilities at the same location where the waste is generated? | Yes |
| Q81 | In your Country are there any centralized waste processing facilities? | Yes |
| Q82 | In your Country are there any mobile waste processing facilities? | No |
| Foreign | | (Yes;No) |
| Q121 | Has your country sent any wastes or spent fuel to another country for processing (reprocessing for fuel)? | No |
| Q124 | Has your country accepted any wastes or spent fuel from another country for processing (reprocessing for fuel)? | No |

Policies

Country: ARGENTINA

Reporting Year: 2011

Spent/Disused SRS

| Registration | | (Yes;No) |
|--------------------|---|----------|
| Q84 | Is there a national level registry? | Yes |
| Q85 | If answer was yes, is the registry used only for disused/spent SRS? | No |
| Q87 | Are there regional-level registries (one or more)? | No |
| Q90 | Are there local-level registries (one or more)? | No |
| Procedures | | (Yes;No) |
| Q91 | Does your Country have documented procedures in place to ensure that sealed radioactive sources (SRS) are transferred to secure facilities in a timely manner after their user declares them to be spent? | Yes |
| Agreements | | (Yes;No) |
| Q93 | Government to Government agreements | No |
| Q94 | Government - Supplier agreements | No |
| Q95 | Supplier-User agreements | Yes |
| Q97 | Do any agreements include suppliers that are outside of your Country? | Yes |
| Release / Disposal | | (Yes;No) |
| Q99 | Does your Country have any regulations to free-release spent sealed radioactive sources (SRS)? | No |
| Q100 | Has your Country disposed of spent SRS in existing disposal facilities for LILW or HLW waste? | Yes |
| Q101 | Does your Country plan to dispose of spent SRS in existing or planned disposal facilities for LILW or HLW waste? | Yes |
| Q102 | Has your Country implemented dedicated disposal facilities for spent SRS? | No |
| Q103 | Does your Country have plans to implement dedicated disposal facilities for spent SRS? | No |

Import-Export

| Radioactive Waste | | (Yes;No) |
|-------------------|---|----------|
| Q104 | Does your Country have laws or Regulations restricting either the import or export of radioactive waste (excluding spent fuel)? | Yes |

Comment # 308: IMPORTACIÓN DE RESIDUOS RADIATIVOS

LA CONSTITUCIÓN NACIONAL PROHIBE IMPORTAR RESIDUOS RADIATIVOS. LA LEY DE RESIDUOS PELIGROSOS PROHIBE IMPORTAR RESIDUOS RADIATIVOS Y REMITE A LA LEGISLACIÓN ESPECÍFICA.

| Spent Fuel | | (Yes;No) |
|------------|---|----------|
| Q105 | Does your Country have laws or Regulations restricting either the import or export of spent fuel? | No |

Policies

Country: ARGENTINA

Reporting Year: 2011

Liquid HLW**Storage****(Yes;No)**

| | | |
|------|---|----|
| Q106 | Does your Country have high-level liquid wastes in storage? | No |
|------|---|----|

UMMT**Responsibility****(Yes;No)**

| | | |
|------|---|----|
| Q110 | Does your Country have any Uranium Mine and Mill Tailings sites that do not have a designated authority to manage them? | No |
|------|---|----|

Decommissioning**Funding****(Yes - All;Yes - Some;No)**

| | | |
|------|--|-----------|
| Q111 | Does your Country require that funds should be set aside in support of future waste management activities, such as decommissioning activities? | Yes - All |
|------|--|-----------|

Facilities**(Yes;No)**

| | | |
|------|---|-----|
| Q119 | Does Your Country have any nuclear fuel cycle facilities? | Yes |
|------|---|-----|

| | | |
|------|---|-----|
| Q120 | Does Your Country have any nuclear applications facilities (non fuel cycle facilities)? | Yes |
|------|---|-----|

Timeframe**(Yes - All;Yes - Some;No)**

| | | |
|------|--|------------|
| Q112 | Does your Country require a time frame for the decommissioning of nuclear fuel cycle facilities once these facilities cease operation? | Yes - Some |
|------|--|------------|

| | | |
|------|--|------------|
| Q113 | Does your Country require a time frame for the decommissioning of non-nuclear fuel cycle facilities once these facilities cease operation? | Yes - Some |
|------|--|------------|

Future Outlook

Country: ARGENTINA

Reporting Year: 2011

Data not available.

Future Outlook

Country: ARGENTINA

Reporting Year: 2011

Data not available.

Future Outlook

Country: ARGENTINA

Reporting Year: 2011

Data not available.

Future Outlook

Country: ARGENTINA

Reporting Year: 2011

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Reporting Year: 2011

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