

GARY R. HERBERT

Governor

GREG BELL Lieutenant Governor

### Department of Environmental Quality

Amanda Smith Executive Director

DIVISION OF RADIATION CONTROL Rusty Lundberg Director



January 19, 2011

### CERTIFIED MAIL RETURN RECEIPT REOUIRED

Materials and Energy Corporation Kimberly E. Holt, Logistics Manager ETTP 2010 Hwy 58, Suite 1020 Oak Ridge, TN 37830

RE: Generator Access Permit Number 0112001205; NOTICE OF VIOLATION AND NOTICE OF PROPOSED IMPOSITION OF CIVIL PENALTY

Dear Ms. Holt:

On December 3, 2010, an inspection was performed at the EnergySolutions, LLC., waste disposal facility. The results of this inspection indicated that certain shipments sent by Materials and Energy Corporation to EnergySolutions were in violation of the Utah Radiation Control Rules.

Accordingly, a Notice of Violation and Notice of Proposed Imposition of Civil Penalties is enclosed. The particular violations are described in the enclosed Notice.

The Division of Radiation Control is significantly concerned that the apparent lack of management control regarding the implementation of your waste classification procedures resulted in significant violations of the Utah Radiation Control Rules. Consequently, your required response to this letter should describe those actions planned or taken to improve the effectiveness of the management control of your permit operations, with particular emphasis on measures currently being taken to prevent future waste classification violations.

Corrective actions taken to avoid future noncompliance are expected to be effective and lasting. Utah Administrative Code Subsection R313-14-15(2)(b)(ii) states, "ineffective licensee programs for problem identification or correction are unacceptable. In cases involving repeated poor performance in an area of concern or serious breakdown in management control, the Executive Secretary may apply the full enforcement authority."

UTAH RADIATION CONTROL BOARD

Rusty Lundberg, Executive Secretary

RL:jf Enclosure

### UTAH RADIATION CONTROL BOARD NOTICE OF VIOLATION AND NOTICE OF PROPOSED IMPOSITION OF CIVIL PENALTY

Materials and Energy Corporation ETTP 2010 Hwy 58, Suite 1020 Oak Ridge, TN 37830

Generator Site Access Permit No. 011 200 1205

An inspection of the Permittee's activities was conducted on December 3, 2010. As a result of the inspection, violations of Utah Radiation Control Rules were identified. The Executive Secretary of the Utah Radiation Control Board proposes a civil penalty. The authority for this proposed action is Utah Code Annotated (1953, as amended) Section 19-3-109. The proposed penalties have been arrived at by using Rule R313-14 of the Utah Administrative Code. The particular violations and the associated proposed civil penalty are set forth below:

1. Utah Radiation Control Rule R313-26-6 states: "Generator Site Access Permittees shall be subject to the provisions of Rule R313-14 for violations of federal regulations, state rules or requirements in the current land disposal facility operating license regarding radioactive waste packaging, transportation, labeling, notification, classification, marking, manifesting or description."

EnergySolutions (Licensee) Radioactive Material License Number UT2300249, 13.A. states: "In accordance with the Order issued by the U.S. Nuclear Regulatory (NRC) Commission dated January 14, 2003, Docket No. 040-8989, License No. SMC-1559, EnergySolutions may possess Special Nuclear Material (SNM) within the restricted area of the EnergySolutions facility as described in Condition 10 provided that: Concentrations of SNM in individual waste containers must not exceed the values listed in Table 13-A at time of receipt."

Contrary to this requirement on December 3, 2010 Materials and Energy Corporation offered a radioactive waste shipment (manifest No.9069-01-0006) to EnergySolutions (Licensee). The shipment consisted of three 85-gallon drums characterized and described by the Permittee as Class A waste. A review of the NRC Uniform Low-Level Radioactive Waste Manifest indicated that the U-235 concentrations listed on the manifest exceeded the limits authorized. Specifically, U-235 was shown as 1,441 pCi/g which exceeded the 1,190 pCi/g limit listed in Table 13-A.

This violation is of significant concern and has been characterized as Severity Level III. The base penalty for this Severity Level is \$2,500.00

A civil penalty of \$2,500.00 is proposed.

Additionally, in accordance with Utah Radiation Control Rule R313-26-6 the above violation was evaluated utilizing the Generator Site Access Permit Enforcement Policy. Accordingly, Materials and Energy Corporation, Generator Site Access Permit will be assessed 200 points for exceeding the U-235 authorized concentration limits.

2. Utah Radiation Control Rule R313-26-6 states: "Generator Site Access Permittees shall be subject to the provisions of Rule R313-14 for violations of federal regulations, state rules or requirements in the current land disposal facility operating license regarding radioactive waste packaging, transportation, labeling, notification, classification, marking, manifesting or description."

#### UTAH RADIATION CONTROL BOARD NOTICE OF VIOLATION

#### AND

#### NOTICE OF PROPOSED IMPOSITION OF CIVIL PENALTY

Page 2

Materials and Energy Corporation ETTP 2010 Hwy 58, Suite 1020 Oak Ridge, TN 37830

Generator Site Access Permit No. 0112 001 205

EnergySolutions' Radioactive Material License No. UT2300249, Condition 13.F <u>At Receipt</u> states: "EnergySolutions shall require generators of SNM waste to provide a written certification with each waste manifest that states the SNM concentrations reported on the manifest do not exceed the limits in Condition 13.A, that the measurement uncertainty does not exceed the uncertainty value in Condition 13.A, and that the waste meets Conditions 13.B through 13.D."

Contrary to this requirement, at receipt the SNM certification was not included with this shipment.

This violation has been characterized as Severity Level III. The base penalty for this Severity Level is \$2,500.00.

A civil penalty of \$2,500.00 is proposed.

Additionally, in accordance with Utah Radiation Control Rule R313-26-6 the above violation was evaluated utilizing the Generator Site Access Permit Enforcement Policy. Accordingly, Materials and Energy Corporation, Generator Site Access Permit will be assessed 150 points for not providing the SNM exception certification.

Therefore, Materials and Energy Corporation Generator Site Permit is assessed a total of \$5,000.00 in civil penalties and 350 Generator Site Access enforcement points for the above violations. The permittee may, within 30 working days of receipt of this Notice, pay the civil penalty in the cumulative amount of \$5000.00, or may protest the imposition of the civil penalty in whole or in part by a written answer. Should the permittee fail to answer in the time specified, the Utah Radiation Control Board will issue an order imposing a civil penalty in the amount proposed.

Any reply to the Notice of Violation should include, for each violation: (1) the corrective steps which have been taken and the results achieved; (2) the corrective steps which have been taken to prevent recurrence; and (3) the date full compliance will be achieved. A response protesting the Imposition of Civil Penalties shall include: (1) an admission or denial of the item of non-compliance; (2) a demonstration of extenuating circumstances; (3) a showing of error in the Notice of Violation; or (4) other reasons why the penalty should not be imposed.

Any response or written answer to this Notice of Violation/Notice of Proposed Imposition of Civil Penalty should be addressed to Rusty Lundberg, Executive Secretary, Utah Radiation Control Board, 195 North 1950 West, P.O. Box 144850, Salt Lake City, Utah 84114-4850. The licensee's attention is directed to the Administrative Procedures set forth in Utah Code Annotated (UCA) 63G-4. If a hearing is requested, the Executive Secretary of the Utah Radiation Control Board will designate the time and place of the hearing.

## UTAH RADIATION CONTROL BOARD NOTICE OF VIOLATION AND NOTICE OF PROPOSED IMPOSITION OF CIVIL PENALTY

Page 3

Materials and Energy Corporation ETTP 2010 Hwy 58, Suite 1020 Oak Ridge, TN 37830

Generator Site Access Permit No. 0112 001 205

Upon failure to pay any civil penalty due which has been subsequently determined in accordance with the applicable provisions of UCA 19-3-109 and R313-14, the matter may be referred to the Attorney General, and the civil penalty may be collected by civil action pursuant to UCA 19-3-109(5).

Dated at Salt Lake City, Utah This 1940 day of January, 2011

UTAH RADIATION CONTROL BOARD

Rusty Lundberg, Executive Secretary

|  |  |   | 100 C   | )                       | (LSA-II), /, (D009) FISSIIE EXCEPTED | UN3321, RQ Waste Radioactive material, low specific activity |   |           |          |          |           |           |                            |            | (LSA-II), 7, (D009) Fissile Excepted | UN3321, RQ Waste Radioactive material, low specific activity | and any additional information) | (Including proper shipping name, hazard class, UN ID number, | 11 II'S DEBARTMENT OF TRANSPORTATION DESCRIPTION | Manifest Number ====>                     | [                  | 4. DOES EPA REGULATED YES EPA MANIFEST NUMBER WASTE REQUIRING A NO | NO TES  | ں ر                 | 4  | ORGANIZATION    | 000017-0404            | EMERGENCY TELEPHONE NUMBER (Include Area Code) | SHIPPING PAPER                              | WASTE MANIFEST         | UNIFORM LOW-LEVEL RADIOACTIVE                             | FORM 540   | The second secon |
|--|--|---|---|-------------------------|--------------------------------------|--|---|-----------|----------|----------|-----------|-----------|----------------------------|------------|--------------------------------------|--|---------------------------------|--|--|---|--------------------|--|---|---------------------|--|-----------------|------------------------|--|---|------------------------|---|--|--|
| Other<br>No Violations Detected on this Shipment   | Container Integrity Inadequate   | Unexpected Exposure Rates Detected  | Contamination or Leakage Detected   | cord Wisste Description |                                      | NA   | - |           |          |          |           |           |                            |            |                                      | NA   | . mื                            | DOT LABEL  | 45   |   |                    | ·  | ÷   | L                   |  |                 |                        |  |   |                        |   | EnergySolutions, LLC   |  |
| this Shipmen   | equale   | es Detected   | Detected  | node note               | <b></b>                              | N N  |   |           | -        |          |           |           |                            |            |                                      | NA<br>S  | INDEX                           | TRANSPORT  | 17/22  | SIGNATURE -                               | David Pemberton    | CONTACT  | Anoxville, IN 3/91/   | 2530 Michell Street | 6. CARRIER - Name  | NM HOIL         | CONTACT                | 0112001205                                     | Utah Generator                              | Oak Ridge, TN 37830    | East Tennessee Technology<br>2010 Highway 58 Suite 1020   | 5. SHIPPER -   |  |
| p  | C. WASTE respects  | B. TITLE: U   | A. HAZARI<br>hazardo<br>centificat  | 20. TERMS AND CON       |                                      | Solid Oxide  |   |           |          |          |           |           |                            |            |                                      | Solid Oxide  | CHEMICAL FORM                   | PHYSICAL AND   | 1111000  | d camer acknow                            | rton               |  | 118/9   | spon                | Name and Address   |                 |                        | <u> </u>                                       | Utah Generator Site Access Permit No. SHIPN | 37830                  | East Tennessee Technology Park 2010 Hichway 58 Suite 1020 | 5. SHIPPER - NAME AND FACILITY  Material & Energy Compration |  |
| IFICATION: Go om the failure of fails to meet the  | MATERIAL: Ge<br>and in accorda   | Jpon acceptano<br>Itations herein s   | IAZARDOUS MATERIALS: Generator restances waste, this shipment is also accentrication as required by 40 CFR 268.1.   | D CONDITIONS            | Cm-243                               | Am-241   |   | U-235     | Th-232   | Sb-125   | Pu-244    | Pu-238    | 46                         | Co-60      | Cm-243                               | Am-241   |                                 |  |  | ledging waste receipt                     |                    |  |   |                     |  |                 |                        | ETTP-10-308                                    | SHIPMENT NUMBER                             |                        |   |  |  |
| enerator agrees<br>the Waste Ma<br>e standards pre   | enerator represonce with all app   | e at the disposition that thereupon   | ALS: Generator<br>hipment is also<br>by 40 CFR 268  |                         | Cm-247 C                             | Cd-109 C   |   | U-236     | U-232 L  | Sr-90    | Ra-226    | Pu-239    | Nb-95                      | Cs-134     | Cm-247                               | Cd-109   | RADIONUCLIDES                   | INDIVIDUAL   | , ,  | DATE / / A                                | 865-524-5592, 107  | (Include Area Code)  | 11/29/2010  | INK000011247        | EPA I.D. NUMBER  | 865-574-0335    | (Include Area Code)    | (Specify)                                      | GENER                                       | PROCESSOR              | COLLECTOR   | 9069-01-0006   | מייים מכם ו  |
| to indemnify Er<br>terial to conform<br>scribed by the I   | ents and warran<br>dicable governm   | al site by Energy<br>transfer from Ge   | r represents & w accompanied b  |                         | Cm-248 Co                            | Ce-141 Ce  |   | U-238 Zr- | U-233 U- | Tc-99 Th | Ru-103 Ru | Pu-241 Pu | Np-237 Pb                  | Cs-137 I-1 | Cm-248 Cc                            | Ce-141 Ce  | CLIDES                          | JUAL   | . (  | バーフ C ー / /<br>STE                        | 32, 107            | E Code)  | AIE   | 247                 | MBER   | 35              | (Include Area Code)    |  | GENERATOR TYPE                              | SSOR                   | CTOR  | 9069-01-0006   | 1  |
| nergySolutions,<br>n in all material<br>Department of  | nts that all data<br>nental laws, rule   | ySolutions, LLC<br>enerator and be  | varrants that W<br>y a separate ar  |                         | Co-57                                | Ce-144 3.  |   | Zr-95     | U-234    | Th-230   | Ru-106    | Pu-242    | Pb-210                     | 1-129      | Co-57                                | Ce-144 9   |                                 | -4   | 7  | NE PER PER PER PER PER PER PER PER PER PE | state regulations. | This also c  | This is to c  |                     | SIGNATO  | Clive,          | Inters                 | Clive  | 9. CON                                      | A001                   | FOR   | 7. FOR   |  |
| LLC, its officers, or<br>respects to the da<br>Transportation or a   | set forth in this (U.<br>s, regulations and  | ITLE: Upon acceptance at the disposal site by EnergySolutions, LLC, and all appropriate regulatory a<br>epresentations herein shall thereupon transfer from Generator and be vested in EnergySolutions, LLC   | aste Material V in in completed haza  | ,                       |                                      | 3.8814E+02   |   |           |          |          |           |           | <b>Ball</b> book on age of |            |                                      | 9.3581E+02   | MBq                             | TOTAL PACKAGE ACTIVITY                                       |  | AUTHORIZED SIGNATURE                      | ations.            | ertifies that the ma   | ertify that the here<br>er condition for tra  |                     | JRE – Authonze   | Clive, U1 84029 | Interstate 80, Exit 49 | EnergySolutions, LLC<br>Clive Disposal Site    | CONSIGNEE - Name and Facility               | ADDITIONAL INFORMATION | FORM 541 AND 541A   | FORM 540 AND 540A  |  |
| employees and agents<br>ita supplied on the (UN<br>any governmental agei   | VASTE MATERIAL. Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE<br>espects and in accordance with all applicable governmental laws, rules, regulations and EnergySolutions LLC's facility license   | ate regulatory authoritic<br>Solutions, LLC   | s (or) is not a hazan<br>ardous waste manifest.   |                         |                                      | 1.0490E+01   |   |           |          |          |           |           |                            |            |                                      | 2.5293E+01   | m Ci                            | GE-ACTIVITY  | 1 5 % J  | . The                                     |                    | aterials are classified, p<br>is described in accorda              | in-named materials are<br>insportation according t  | 10                  | SIGNATURE - Authorized consignee acknowledging waste receipt |                 | 9                      | LC<br>(Treatment Facility)                     | nd Facility                                 | ATION                  |   | PAGE 1 OF  |  |
| against all losses and<br>IFORM LOW-LEVEL F<br>ncy having jurisdiction   | RADIOACTIVE WAST s facility license.   | es, title to the Waste M  | dous waste as defined<br>along with the approp  |                         |                                      | NA   |   |           |          |          |           |           |                            |            |                                      | A  | CLASS                           | LSA/SCO  | 11. 12. 12. 1C.                                  | TIME                                      |                    | ackaged, marked, and<br>noe with the requireme                     | properly classified, de<br>to the applicable regula   | 10. CERTIFICATION   | ging waste receipt   |                 |                        | Facility)                                      |   | None PAGE(S)           | 1 PAGE(S)   | 2 PAGE(S)  |  |
| INDEMNIFICATION: Generator agrees to indemnify EnergySolutions, LLC, its officers, employees and agents against all losses and liability whatsoever if such losses or liability results from the failure of the Waste Material to conform in all material respects to the data supplied on the (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST.) or if this shipment fails to meet the standards prescribed by the Department of Transponation or any governmental agency having jurisdiction over such matters. | VASTE MATERIAL: Generator represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all espects and in accordance with all applicable governmental laws, rules, regulations and EnergySolutions LLC's facility license. | TTLE: Upon acceptance at the disposal site by EnergySolutions, LLC, and all appropriate regulatory authorities, title to the Waste Material which conforms to Generator's epresentations herein shall thereupon transfer from Generator and be vested in EnergySolutions, LLC | -IAZARDOUS MATERIALS: Generator represents & warrants that Waste Material 📉 is (or) is not a hazardous waste as defined in 40 CFR 261. Where the material is a nazardous waste, this shipment is also accompanied by a separate and completed hazardous waste manifest, along with the appropriate land-disposal restriction notice and/or randication as required by 40 CFR 268.1. |                         | 71.6713                              | 230 LBS;   |   |           |          |          |           |           |                            |            | 11.6 + 13                            | 707 LBS;   | (Use appropriate units)         | OR VOLUME  | 18 TOPN WEIGHT                                   |   |                    | nts of 10 CFR Parts 20 a   | This is to certify that the herein-named materials are property classified, described, peckaged, marked, and labeled and<br>are in proper condition for transportation according to the applicable regulations of the Department of Transportation. |                     | CA<br>In   | (435)884-0155   | (Include Area Code)    | Transportation Compliance                      | CONTACT                                     | ETTP-10-308            | pages)  | 8. MANIFEST NUMBER (Use this number on all continuation      |  |
| ch losses or liability WANIFEST.) or if this   | and correct in all   | o Generator's   | the material IS a<br>xion notice and/or   |                         |                                      | 56172  | - |           |          |          |           |           |                            |            |                                      | 56163  | PACKAGE                         | NUMBER OF  | 10 IDENTIFICATION                                | DATE /                                    |                    | and 61, or equivalent  | ked, and labeled and of Transportation.   |                     |  |                 |                        | Compliance                                     |   | 10-308                 |   | all continuation   |  |

FORM 540 (03-06

# FORM 540A

| _                  | _                                      |   | Τ- | -   | _     | <br><del></del> | <br>                                    | <br>- |   | <del></del> - |         |          |           |          |                                      |   |         |         |         | _        | _        |          |                                      | ,  |  |   |                               |                |                               |   |
|--------------------|--|---|----|-----|-------|-----------------|---|-------|---|---------------|---------|----------|-----------|----------|--------------------------------------|---|---------|---------|---------|----------|----------|----------|--------------------------------------|--|--|---|-------------------------------|----------------|-------------------------------|---|
| F ORM 54DA (03-06) |  |   |    |     |       |                 |   |       |   |               |         |          |           |          | (LSA-II), 7, (D009) Fissile Excepted | UN3321, RQ Waste Radioactive material low specific patients |         |         |         |          |          |          | (LSA-II), 7, (D009) Fissile Excepted | UN3321, RQ Waste Radioactive material, low specific activity | (including proper shipping name, hazard class, UN ID number, | 11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION |                               |                |                               |   |
|                    |  |   |    |     |       | ·:              |   |       |   |               | -       |          |           |          | N                                    |   |         |         |         |          |          |          | 5                                    | قب ا   | DOT LABEL  | 12.   | SHIPPING PAPER (CONTINUATION) | WASTE          | UNIFORM LOW-LEVEL RADIOACTIVE |   |
|                    |  | - |    |     | ····· |                 |   |       |   |               |         |          |           |          | Š                                    |   |         |         |         |          |          |          | Z                                    | INDEX  | TRANSPORT  | 13  | ER (CONTI                     | WASTE MANIFEST | LEVEL R                       |   |
|                    |  |   |    |     |       |                 |   |       |   |               |         |          |           |          | Solid Oxide                          | -   |         |         |         |          |          |          | Solid Oxide                          |  | T PHYSICAL AND   |   | INUATION)                     | ST             | ADIOACTIVE                    |   |
|                    |  |   |    |     |       | -107            | <del></del>                             |       |   | Th-230        | Sb-125  | Pu-241   | Np-237    | Cs-137   | Am-241                               |   | U-235   | Th-232  | Sb-125  | Pu-244   | Pu-238   | ×-40     | Co-60                                |  |  |   |                               |                |                               |   |
|                    | ······································ | - |    |     |       |                 | *************************************** |       | . | U-234         | Sr-90   | Pu-242   | Pb-210    | I-129    | Co-57                                |   | U-236   | U-232   | Sr-90   | Ra-226   | Pu-239   | Nb-95    | Cs-134                               | RADION   |  |   |                               |                |                               |   |
|                    |  |   |    |     |       |                 |   |       |   | U-235 U-      | Тс-99 Т | Pu-244 R | Pu-238 Pi | X-40 N   | Co-60 C                              |   | U-238 2 | U-233 U | Tc-99 T | Ru-103 R | Pu-241 P | Np-237 F | - 1                                  | RADIONUCLIDES  | 15.  |   |                               |                |                               |   |
| -                  | -                                      |   |    |     |       |                 |   |       |   | U-238         | Th-228  | Ra-226   | Pu-239    | Nb-95    | Cs-134 g                             |   | 2r-95   | U-234   | Th-230  | Ru-106   | Pu-242   | Pb-210   | -129                                 |  | _  |   |                               |                |                               |   |
|                    |  |   |    |     |       |                 |   |       |   |               |         |          |           |          | 9.1385E+02                           |   |         |         |         |          |          |          | 3.8814E+02                           | TOTAL PACI   |  |   |                               |                |                               |   |
| <br>               |  |   |    |     |       |                 |   |       |   |               |         |          |           |          | 2.4699E+01                           |   |         | •       |         |          |          |          | 1.0490E+01                           | MBq mCi mCi  | 16.  |   |                               |                | Energ                         |   |
|                    |  |   |    |     |       |                 |   |       |   |               |         |          |           |          | N                                    |   |         |         |         |          |          |          | NA                                   | LSA/SCO  | 17.  |   |                               |                | EnergySolutions, LLC          |   |
|                    |  |   |    |     |       |                 |   |       |   |               |         | ,        |           | 11.6 FT3 | 578 LBS:                             |   |         |         |         |          |          | 11.6 FT3 | 230 I RS:                            | OR VOLUME  | 18. TOTAL WEIGHT   | ,   | Page 2 of                     | ETTP-10-308    | 3 (Use this number on all con | ┨ |
|                    |  |   |    | · · |       |                 |   | •     |   |               |         |          |           |          | 67414                                |   |         |         |         |          |          | 3017.    | FRATO                                | NUMBER OF  | 19. IDENTIFICATION   |   | <b>.</b>                      |                | all continuation pages)       |   |

| اچ                 | 90 70 00 14  | ων - τ   | 3 < 3  | Π.              | Г           |             |            |             | ī           |               |            |                          |  |            |               |            |             |            | · · · · ·                             |                          |               |  |                          |               |                        |   |                                |  |                                |  |                               |   |                                 |   |                |                   | ž                                |                      |
|--------------------|--|--|--|-----------------|-------------|-------------|------------|-------------|-------------|---------------|------------|--------------------------|--|------------|---------------|------------|-------------|------------|---------------------------------------|--------------------------|---------------|--|--------------------------|---------------|------------------------|---|--------------------------------|--|--------------------------------|--|-------------------------------|---|---------------------------------|---|----------------|-------------------|----------------------------------|----------------------|
| FORM 541 (03-06)   | Metal Drum or Pail 12.  Metal Tank or Liner 13.  Concrete Tank or Liner 19.  Polyethlene Tank or Liner  Fiberglass Tank or Liner | Wooden Box or Crate 9.  Metal Box 10.  Plastic Drum or Pail 11.  | waste requiring disposal in approved structural over-                              |                 |             | -           |            |             |             |               |            |                          |  |            |               |            |             |            |                                       |                          |               |  |                          |               | 56163/TNR000005397     | NUMBER(S)   | GENERATION GENERATOR ID        | CONTAINER                                  | 5.                             |  |                               | Additional Nuclear  |                                 |   |                | UNIT              |                                  | TOX 8 941            |
|                    | Unpackaged Components High Integrity Container Other. Describe in Item 6, or additional page                                     | Demineralizer Gas Cylinder Bulk, Unpackaged Waste  | on Codes. For containers/<br>approved structural over-                             |                 |             |             | •          |             |             |               |            |                          | and the same of th |            |               |            | T           |            |                                       |                          |               |  |                          |               | Note 1A)               | (See Note 1 &   | DESCRIPTION                    |  | 6                              |  | Disposal o                    | Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and | CONTRINER AND WASTE DESCRIPTION | CONTAINER AND                           | WASTE MANIFEST | UNIFORM LOW-LEVEL |                                  |                      |
|                    |  | A Gondola B intermodal C End-Dump  | Note 1A:<br>(Choose o  |                 |             |             |            |             |             |               |            |                          |  | · ·        |               |            |             |            |                                       |                          |               |  | ***                      | 0.3285        | (ft3)                  | (m <sub>3</sub> )   | VOLUME                         | į  | SPOSAL CON                     |  | Disposal of Radioactive Waste | ion (NRC) I   | AYOLE DE                        |   | MANIFE         | VEL R             |                                  |                      |
|                    | 5 13 1   | ola<br>lodal   | Note 1A: Bulk Packaging Description Codes. (Choose one code as may be applicable.) |                 |             |             |            |             |             |               |            |                          |  |            |               |            |             |            |                                       |                          |               | 0.3535                                       |                          | 320.6898      | (ton)                  | (ka)  | CONTAINER                      | WASTE                                      | DISPOSAL CONTAINER DESCRIPTION |  | ve Waste                      | Requirements  | CKITION                         |   | TST            | RADIOACTIVE       |                                  |                      |
|                    |  |  | Description Cor  |                 |             |             |            |             |             |               |            |                          |  |            |               | -          |             |            |                                       |                          |               | <5.0000E-01                                  |                          | <5.0000E-03   |                        | (m/Sw/hr)   | . دح                           |  | PTION                          |  |                               | s for Control,  |                                 |   | 1              | TVF               |                                  | Energy               |
| L                  | 24<br>25<br>26<br>27<br>28   |  | _  |                 |             |             |            |             |             |               |            |                          |  |            |               | -          | •           |            |                                       |                          |               | <2.0000E+01                                  |                          | <3.3400E-07   | ALPHA                  | (dpm  | CONT/<br>(MBq                  | Ē  |                                |  |                               | Transfer ar   |                                 |   |                |                   |                                  | EnergySolutions, LLC |
| razai uous         |  | 0. Charcoal<br>1. Incinerator Ash<br>2. Soil<br>3. Gas   | OTE 2: Waste   |                 |             |             |            |             | -           |               |            |                          |  |            |               |            |             |            |                                       |                          |               | <1.0000E+03                                  | - CO-100                 | -             | BETA-<br>GAMMA         | (apm/100cm2)  | CONTAMINATION<br>(MBq/100 cm2) |  |                                | л<br>С:                                | MBq                           | a<br>   |                                 | ,                                       | د.             | CONTAIN           | PACKAGES/                        | LLC                  |
|                    | 33 8 33  | 29 Demoi<br>sh 30 Cation<br>31 Anion 32 Mixed  | Descriptor Code  |                 |             |             |            |             |             |               |            |                          |  |            |               | <u>-</u> - |             |            |                                       |                          |               | <u> </u>                                     | 1 0                      | 26-Н          | (See Note 2 Note 2A)   | DESCR   | WASTE                          |  |                                | 6.0482E+01                             | 2.2378E+03                    | ALL NUCLIDES  |                                 | #3<br>3                                 | 33             |                   | NET WASTE                        | OF.                  |
|                    | Contaminated Equipment Organic Liquid (except oil) Glassware or Labware Sealed Source/Device Paint or Plating                    | Demolition Rubble Cation lon-exchange Media Anion lon-exchange Media Mixed Bed lon-exchange Media  | s. (Choose up  | _               |             |             |            |             |             |               | -          |                          |  |            |               |            |             | -          |                                       | <u> </u>                 |               |  |                          |               |                        |   |                                | PHYSICAL                                   | -                              | 3                                      | ວິລ                           |   |                                 | 34.8000 ton                             | 0.9855 kg      |                   | <del></del> -                    |                      |
|                    | 41<br>42<br>43<br>59   | edia 38 E<br>edia 39 C   | to three which   | _               |             |             |            |             |             |               |            |                          |  |            |               |            | -           |            |                                       |                          |               | 11.6000                                      | 0.3285                   |               | (m3)                   | VOLUME(S) IN  | PROXIMATE IS                   | YSICAL DESCRIPTION                         |                                | 8                                      | NP                            | TRITIUM   |                                 | 0.5625                                  | 510.2914       | WEIGHT            | NET WASTE                        |                      |
| or additional page | Animal Carcass Biological Material (except animal carcass) Activated Material Other. Describe in item 11                         | Evaporator Bottoms/Sludges/<br>Concentrates<br>Compactible Trash   | NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)  |                 |             |             |            |             |             |               |            |                          |  | •          |               |            |             |            |                                       |                          |               |  | (DESCRIBE)               |               | (See Note 3)           | STABILIZATION<br>MEDIA  | OLIDIFICATION O                |  |                                | Q D                                    | S<br>G                        | C-14  | ACTIVITY                        | Z<br>T                                  |                | U-233             |                                  | 1. MA7               |
|                    |  |  | _  |                 |             |             |            |             |             |               |            |                          |  |            |               |            |             |            |                                       |                          |               |  |                          | Oxide/NP      | AGENT                  |   |                                | 14 CHEMICAL DESCRIPTION 15 BADIO CONTAINER | WASTE DESCRIB                  | 1 000                                  | 7.262                         | 17  |                                 |   |                | _                 | SPE                              | 1. MANIFEST TOTALS   |
|                    | H Solid Combustible Non-combustible J Non-combustible K Air Filtration Filters   | hoose all appli  | OTE 2A: Speci  | -               |             |             |            |             |             |               |            |                          |  |            |               |            | <del></del> |            | -                                     | -                        | 1             | <u>.                                    </u> |                          | ₽.            | AGENT<br>IF > 0.1%     | <u>Ω</u>  | WEIGHT                         | CHEMICAL DESCRIPTION                       | SCRIPTION FOR FAC              | 70.01                                  | 7.2621E+02                    | Tc-99   |                                 | ₹<br>                                   |                | U-235             | CIAL NUCLEAR                     |                      |
|                    | ole<br>iit <b>er</b> s   | (Choose all applicable codes.)   | ic Wasta Dascr   | Th-230 [3       | Tc-99       | Sr-90       | Sb-125     | Ru-106      | Ru-103      | Ra-226        |            |                          |  | Pb-210     | Nb-95         | ¥ ;        | Cs-137      | Cs-134     | C C C C C C C C C C C C C C C C C C C | Cm-248                   | Cm-243        | 000  |                          | Am. 24        |                        | <u>ດ</u> ົ  | į                              | A AND I CALL                               | 6.8828E-04                     |  | 2 5466F-02                    | 1-129   |                                 | 3 Containers                            | 6.0930E-03     | Ри                | SPECIAL NUCLEAR MATERIAL (grams) |                      |
| 93                 | 99 90 in 1   |  | 51   | [3.0370E-07 kg] |             |             |            |             |             | [3.3400E-U3   | 4.3896E-   | [2.7142E-09 g]           | [1.5216E-  |            |               |            |             |            |                                       |                          |               |  |                          | RADIONUCLIDES |                        | CONTA   | מייים ביים                     | DADIO ON AINE                              | (tons)                         |  |                               |   |                                 | · .                                     | <u>ω</u>       |                   | ms)                              |                      |
|                    | tem 13. Code idification Cement Concrete (encapsulation) Bitumen   | votes: Soliamication and Stabritzation Media Codes. (Choose up to three which predominate by volume.) For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S." and the media vendor and brand name must also be identified  | 2 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  |                 | 4.13437E+04 | 1.77106E+00 | 1.5417     | 4.93664E-01 | 3.29400E-01 | 2             | $\neg$     |                          |  | 5.934      | 5.527         | 8.184      | 1.667       | 4.809      | 2 8 1 9                               | 3.617                    | 3.564         | 1.307  | 4.691                    | 1 PC          | AND RADIO              | INDIVIDUAL RADIONUCLIDES AND ACTIVITY (IMBq) AND CONTAINER TOTAL: OR CONTAINER TOTAL ACTIVITY | SADIOLOGICAL DESCRIPTION       | 7  | 6.0993E-02                     |  | UT=C223 5                     | SOURCE<br>(kg)  |                                 | 6.0930E-03                              |                | Total             |                                  |                      |
| 100 None Requi     | 100=NONE REQUIRED. 94. Vinyl Ester Styret 99. Other. Describe in item 13. or additional name                                     | on and Stabi<br>minate by vo<br>requirement<br>edia vendor a   |  |                 |             |             | _          |             |             | 7.28617F-02 7 | .   _      | _                        | 9.91581E-01 9.   | 4E+00 5    | 5.52718E-02 5 | 10E-01 7   | 85E-01 1    | 61E-01 4   | 86E-01 7                              | 3.61788E-02 3            | 3.56454E-02 3 | 1.30713E+00 1                                | 4.69131E+01 4            | +-            | VUCLIDE PEF            | CONTAINER   | S                              |  | $\vdash$                       | ــــــــــــــــــــــــــــــــــــــ | SHIPMENT                      |   | Mate                            | - 1                                     | <br>ω<br>P     | $\prod_{i=1}^{L}$ | 2. M                             |                      |
| None Required      | ONE REQUIRED. Vinyl Ester Styrene Other. Describe in item 13. or additional name   | inization Media in furme.) For met services, the numerica and brand name   |  |                 |             |             | -          |             |             | 7 0555E-04    |            | 1.0335E-02               | 9.6022E-03   | 7468E-02   | 3524E-04      | 9254E-03   | .6151E-03   | .6576E-03  |                                       | 3.5035E-04               |               |  |                          | 3             | CENT                   | TOTAL ACTIVI  |                                |  | 9000-1.0-6908                  |  | ENT ID NO                     |   | Material & Energy               | FRNA                                    | PAGE 1         | E]                | MANIFEST NUMBER                  |                      |
|                    |  | Codes. (Choos displayments disp |  | 6.2381E-03      | 1.0821E+01  | 4.6352E-04  | 4.0352E-04 | 1.2920E-04  | 8.6211E-05  | 6.0604E-05    | 1.7795E-05 | 4.8424E-04<br>2.7932E-04 | 2.5952E-04   | 1.4386E-04 | 1.4466E-05    | 2.1420E-04 | 4.3651E-05  | 1.2588E-04 | 2.0303E-06                            | 1.8382E-05<br>9.4688E-06 |               | 3.4210E-04                                   | 4.2464E-05<br>1.2278E-02 | mCi           | •                      | 7 Å   |                                |  |                                | Ţ                                      | DNUMBER                       | 1   | Corpora                         |   | 아<br>•         | ETTP-10-308       | MBER                             |                      |
|                    |  | se up to posal site followed identified  |  |                 |             |             |            |             |             |               |            |                          |  |            |               |            |             |            |                                       |                          |               |  | À                        |               | B-Class B<br>C-Class C | AU-Class A  | CATION<br>AS-Class A           | 16 WAS IE                                  |                                |  |                               | :   | tion                            | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | PAGE(S)        |                   |                                  |                      |

| kg]  1.45572E-01 2.4431E-04 6.6030E-06 1.90789E+01 3.2020E-02 8.6540E-04 4.92551E+00 8.2665E-03 2.2342E-04 4.92551E-00 8.9214E-04 2.4112E-0.5 1.44965E-02 2.4329E-05 6.5755E-07 2.35632E-02 4.7937E-05 1.2956E-06 1.47134E-02 2.4693E-05 6.6739E-07 3.15485E-03 3.9590E+00 1.0700E-01 1.95601E-01 3.2827E-04 8.8722E-06 6.52572E+03 1.0952E+01 2.9600E-01 5.89957E-01 9.9012E-04 1.5097E-05 2.24783E-02 3.7725E-05 1.0196E-06 9.61140E+00 1.6131E-02 4.3596E-04 2.41346E+00 3.0980E-03 1.0947E-04 9.1 3.48844E+00 5.8545E-03 1.0947E-04 9.1 3.48844E+00 5.8545E-03 1.0947E-04 9.1 3.48844E+00 5.8545E-03 1.0947E-04 9.1 3.48844E+00 5.8545E-03 1.3441E-06 1.33963E-01 2.2483E-04 6.0764E-06 2.00767E-01 3.3694E-04 9.1066E-06 6.27026E-01 1.0523E-02 3.3159E-04 1.69458E+04 2.8440E+01 7.6864E-01  | [4.8989E-09<br>[2.5522E-09<br>[1.9445E-09<br>[3.0939E-07<br>[2.3589E-04  | - W W II II II II II II II I I I I I I I           |                   |              |                      |  |   |               |   |                                |             |               |                    |
|--|--|--|-------------------|--------------|----------------------|--|---|---------------|---|--------------------------------|-------------|---------------|--------------------|
| (g) 1.45572E-01 2.4431E-02 1.90789E+01 3.2020E-02 4.92551E+00 8.2665E-02 4.92551E+00 8.9214E-04 1.44965E-02 2.4329E-05 2.4693E-02 4.7937E-06 2.35896E+03 3.9590E+00 1.95601E-01 3.2827E-04 6.52572E+03 1.0952E+01 5.89957E-01 9.9612E-04 3.32837E-01 5.5859E-05 9.61140E+00 1.6131E-02 2.41346E+00 4.0504E-03 1.48454E+00 5.8545E-03 1.48454E+00 5.8545E-03 1.48454E+00 5.8545E-03 1.48454E-00 5.8545E-03 1.34844E-00 5.8545E-03 1.34844E-00 5.2545E-03 1.34844E-00 5.8545E-03 1.34844E-00 5.8545E-04 2.96319E-02 1.5805E-04 2.96319E-02 1.5805E-04 2.96319E-02 1.2269E-02 7.31024E-00 1.2269E-02   | 109<br>141<br>141<br>144<br>144<br>2243<br>2248<br>2047<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10  | <b>Ο Ο ΣΙ </b> |                   |              |                      |  |   |               |   |                                |             |               |                    |
| (g) 1.45572E-01 2.4431E-02 1.90789E+01 3.2020E-02 4.92551E+00 8.2665E-03 4.92551E+00 8.2665E-03 5.31592E-01 8.9214E-04 1.44965E-02 2.4329E-05 1.47134E-02 2.4693E-05 3.15485E-03 5.2947E-04 6.52572E+03 1.0952E+01 1.95601E-01 3.2827E-04 6.52572E+01 9.9012E-04 3.32837E-01 5.5859E-05 9.61140E+00 1.6131E-02 2.41346E+00 4.0504E-03 1.84594E+00 3.0980E-03 1.84594E+00 5.8545E-03 1.34634E+00 7.4041E-03 1.37653E-02 4.6409E-05 1.33963E-01 2.2483E-04 2.96319E-02 4.9732E-05 1.33963E-01 3.3694E-04 2.00767E-01 3.3694E-04  | [4.8989E-09<br>[7.5522E-06<br>[7.9445E-07<br>[7.3589E-07   | (O J J J J J J J J J J J J J J J J J J J           |                   |              |                      |  |   | _             |   |                                |             |               |                    |
| (g) 1.45572E-01 2.4431E-02 1.90789E+01 3.2020E-02 4.92551E+00 8.2665E-03 4.92551E+00 8.2665E-03 5.31592E-01 8.9214E-04 1.44965E-02 2.4329E-06 1.47134E-02 4.7937E-06 2.35896E+03 3.9590E+00 1.95601E-01 3.2827E-04 6.52572E+03 1.0952E+01 6.5957E-01 5.5859E-04 3.32837E-01 5.5859E-04 2.24783E-02 3.7725E-06 9.61140E+00 1.6131E-02 2.41346E+00 4.0504E-03 1.84594E+00 3.0980E-03 31 4.41167E+00 7.4041E-03 31 2.76523E-02 4.6409E-06 1.33963E-01 2.2483E-04 2.96319E-02 4.9732E-05 1.33963E-01 3.3694E-04  | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1  | 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7              |                   |              |                      |  | +                                       | _             |   | _                              | 1           |               |                    |
| (g)  1.45572E-01 2.4431E-02 1.90789E+01 3.2020E-02 4.92551E+00 8.2665E-03 4.92551E+00 8.2665E-03 4.92551E-01 8.9214E-04 1.44965E-02 2.4329E-05 1.471348-02 2.4329E-05 3.15485E-03 5.2947E-06 2.35896E+03 3.9590E+00 1.95601E-01 3.2827E-04 6.52572E+03 1.0952E+01 6.52572E+01 9.9012E-04 3.32837E-01 5.5859E-04 2.24783E-01 9.9012E-04 2.24783E-01 9.9012E-04 3.32837E-01 5.5859E-04 2.24783E-01 9.9012E-04 3.184594E+00 3.0980E-03 1.84594E+00 3.0980E-03 1.84594E+00 7.4041E-03 1.41167E+00 7.4041E-03 1.276523E-02 4.6409E-05 1.33963E-01 2.2483E-04  | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1  | 71 TI          |                   |              |                      |  | _                                       |               |   |                                |             |               |                    |
| (g)  1.45572E-01 2.4431E-02 1.90789E+01 3.2020E-02 4.92551E+00 8.2665E-03 4.92551E+00 8.2665E-03 4.92551E-01 8.9214E-04 1.44965E-02 2.4329E-05 1.47134E-02 1.4935E-03 1.5485E-03 5.2947E-04 2.35896E+03 3.9590E+00 1.95601E-01 3.2827E-04 6.52572E+03 1.0952E+01 1.95601E-01 9.9012E-04 3.32837E-01 5.859E-03 2.24783E-02 3.7725E-05 9.61140E+00 1.6131E-02 2.41346E+00 4.0504E-03 1.84594E+00 3.0980E-03 1.84594E+00 5.8545E-03 1.441167E+00 7.4041E-03 1.27653E-02 4.6409E-05 1.95319E-02 4.9732E-04   | 1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1  | 77 77 77 77 77 77 77 77 77 77 77 77 77             | _                 |              |                      |  |   |               |   | _                              |             |               | -                  |
| (g) 1.45572E-01 2.4431E-0. 1.90789E+01 3.2020E-0. 4.92551E+00 8.2665E-0. 4.92551E+00 8.2665E-0. 4.92551E-01 8.9214E-0. 1.44965E-02 2.4329E-0. 1.47134E-02 1.4935E-0. 2.35896E+03 5.2947E-0. 2.35896E+03 5.2947E-0. 2.35896E+03 1.0952E+01 6.52572E+03 1.0952E+01 6.52572E+03 1.0952E+01 5.89957E-01 9.9012E-0. 2.24783E-02 3.7725E-0.6 9.61140E+00 1.6131E-0.2 2.41346E+00 4.0504E-0.3 1.84594E+00 3.0980E-0.3 1.84594E+00 7.4041E-0.3 1.276523E-02 4.6409E-0.6 1.76523E-02 1.5805E-0.4  | 9<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1   | 77 77 77 77 77 77 77 77 77 77 77 77 77             |                   |              |                      |  |   |               |   |                                |             | -             |                    |
| (g) 1.45572E-01 2.4431E-02 1.90789E+01 3.2020E-02 4.92551E+00 8.2665E-03 4.92551E+00 8.2665E-03 4.92551E-01 8.9214E-04 1.44965E-02 2.4329E-05 1.47134E-02 2.4329E-05 1.47134E-02 2.4329E-06 2.35896E+03 3.9590E+00 2.35896E+03 3.9590E+00 1.95601E-01 3.2827E-04 6.52572E+03 1.0952E+01 1.95601E-01 9.9012E-04 2.24783E-01 9.9012E-04 3.32837E-01 5.5859E-04 2.24783E-01 0.6131E-02 2.41346E+00 1.6131E-02 2.41346E+00 3.0980E-03 3.184594E+00 7.4041E-03 3.184594E+00 7.4041E-03 3.184594E-00 7.4041E-03  | 8<br>8<br>14.8989E-09<br>[1.9445E-09<br>[3.0939E-07  |  |                   |              |                      |  |   |               | -                                       | _                              |             |               |                    |
| (g) 1.45572E-01 2.4431E-0. 1.90789E+01 3.2020E-0. 4.92551E+00 8.2665E-0. 4.92551E+00 8.2665E-0. 4.92551E-01 8.9214E-0. 5.31592E-01 8.9214E-0. 1.44965E-02 2.4329E-0. 1.4965E-02 2.4932E-0. 2.4693E-02 4.7937E-0. 2.35896E+03 5.2947E-0. 2.35896E+03 5.2947E-0. 2.35896E+03 3.9590E+0. 2.35896E+03 1.0952E+01 9.9012E-0. 4.95601E-01 9.9012E-0. 5.52572E+01 9.9012E-0. 4.95601E-01 3.2827E-0. 5.52572E-01 9.9012E-0. 2.44336E-00 1.6131E-0. 2.44336E+00 1.6131E-0. 2.44346E+00 3.0980E-0. 3.184594E+00 3.0980E-0. 3.184594E+00 5.8545E-0. 3.184594E+00 5.8545E-0. 3.184594E+00 5.8545E-0.   | 8<br>7<br>7<br>14.8989E-09<br>17.5522E-09  |  |                   |              |                      |  |   |               |   |                                |             |               |                    |
| (g] 1.45572E-01 2.4431E-0. 1.90789E+01 3.2020E-0. 1.90789E+01 8.2665E-0. 4.92551E+00 8.2665E-0. 4.92551E+00 8.2665E-0. 5.31592E-01 8.9214E-0. 1.4965E-02 2.4329E-0. 1.4965E-02 2.4329E-0. 2.6532E-02 4.7937E-0. 2.65632E-02 4.7937E-0. 2.35896E+03 5.2947E-0. 2.35896E+03 5.2947E-0. 2.35896E+03 1.0952E+01 9.9012E-0. 4.95601E-01 9.9012E-0. 6.52572E+01 9.9012E-0. 3.32837E-01 5.5859E-0. 2.24783E-02 3.77259E-0. 9.61140E+00 1.6131E-0. 2.41346E+00 4.0504E-0.3 g] 1.84594E+00 3.0980E-0.3  | 1 3 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5  |  |                   |              |                      |  |   |               |   |                                |             |               |                    |
| (g) 1.45572E-01 2.4431E-0. 1.90789E+01 3.2020E-0. 1.90789E+01 8.2665E-0. 4.92551E+00 8.2665E-0. 4.92551E+01 8.9214E-0. 1.44965E-02 2.4329E-0. 1.44965E-02 2.4937E-0. 1.47134E-02 1.4937E-0. 3.15485E-03 5.2947E-0. 3.15485E-03 5.2947E-0. 2.35896E+03 3.9590E+0. 1.95601E-01 3.2827E-0. 4.52572E+03 1.0952E+01 5.5859E-01 9.9012E-0. 3.32837E-01 5.5859E-0. 2.24783E-02 3.7725E-0.6 9.61140E+00 1.6131E-0.2 2.41346E+00 4.0504E-0.3  | 87 37-0  |  |                   |              |                      |  |   |               |   |                                |             |               |                    |
| 1.45572E-01 2.4431E-02<br>1.90789E+01 3.2020E-02<br>4.92551E+00 8.2665E-03<br>5.31592E-01 8.9214E-04<br>5.31592E-01 8.9214E-04<br>1.44965E-02 2.4329E-05<br>2.85632E-02 4.7937E-05<br>1.47134E-02 2.4693E-05<br>3.15485E-03 5.2947E-06<br>2.35896E+03 3.9590E+00<br>1.95601E-01 3.2827E-04<br>6.52572E+03 1.0952E+01<br>6.52572E+03 1.0952E+01<br>6.52572E-01 5.5859E-04<br>6.224783E-02 3.7725E-05<br>9.61140E+00 1.6131E-02  | ICG-109 ICG-141 ICE-144 ICE-144 ICE-247 ICM-248 ICM-248 ICM-248 ICM-248 ICM-248 ICM-248 ICM-248 ICM-248 ICM-247 ICM-24   |  |                   |              |                      | ,  |   |               | ·····                                   |                                |             |               |                    |
| 1.45572E-01 2.4431E-0. 1.90789E+01 3.2020E-0. 1.90789E+01 3.2020E-0. 4.92551E+00 8.2665E-0. 4.92551E-01 8.9214E-0. 5.31592E-01 8.9214E-0. 5.31592E-02 2.4329E-0. 2.86532E-02 2.7937E-0. 1.44965E-02 2.76937E-0. 2.86532E-03 5.2947E-0. 3.15485E-03 5.2947E-0. 3.15485E-03 5.2947E-0. 3.2827E-01 3.2827E-0. 6.52572E+03 1.0952E+01 6.52572E+03 1.0952E+01 6.52572E+01 5.5859E-0. 2.3637E-01 5.5859E-0.  | CG-109<br>CG-141<br>CE-144<br>CE-143<br>CM-243<br>CM-247<br>CM-248<br>CO-57<br>CO-60<br>CS-134<br>CS-134<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-137<br>CS-1 |  |                   |              |                      |  |   |               |   |                                |             |               |                    |
| 1.45572E-01 2.4431E-0. 1.90789E+01 3.2020E-0. 1.90789E+01 8.2665E-0. 4.92551E+00 8.2665E-0. 4.92551E-01 8.9214E-0. 5.31592E-01 8.9214E-0. 2.4329E-0. 2.4329E-0. 2.4693ZE-0. 1.47134E-0. 2.4693ZE-0. 1.47134E-0. 3.2927E-0. 3.15485E-0. 3.9590E+0. 3.9590E+0. 3.9590E+0. 3.9590E+0. 3.9957E-0. 9.9012E-0.   | ICG-109<br>ICE-141<br>ICE-144<br>ICE-144<br>ICM-243<br>ICM-247<br>ICM-248<br>ICM-57<br>ICM-60<br>ICC-60<br>ICC-60<br>ICC-134<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>ICC-137<br>IC   |  |                   |              |                      |  |   |               |   |                                |             |               |                    |
| 1.45572E-01 2.4431E-0. 1.90789E+01 3.2020E-0. 1.90789E+01 8.2665E-0. 4.92551E+00 8.2665E-0. 5.31592E-01 8.9214E-0. 5.31592E-02 2.4329E-0. 2.86632E-02 4.7937E-0. 1.44965E-02 2.46937E-0. 1.47134E-02 2.4693E-0. 3.15485E-03 5.2947E-0. 3.35896E+03 3.9590E+0. 1.95601E-01 3.2827E-0. 6.52572E+03 1.0952E+01  | ICG-109<br>ICG-141<br>ICE-144<br>ICE-243<br>ICM-247<br>ICM-248<br>ICO-57<br>ICO-60<br>ICS-134<br>ICS-137   |  |                   | -            |                      |  |   | +             | *************************************** |                                |             |               |                    |
| 1.45572E-01 2.4431E-04<br>1.90789E+01 3.2020E-03<br>1.90789E+01 8.2665E-03<br>4.92551E+00 8.2665E-03<br>5.31592E-01 8.9214E-04<br>1.44965E-02 2.4329E-05<br>2.86632E-02 4.7937E-05<br>1.47134E-02 2.4693E-05<br>3.15485E-03 5.2947E-06<br>2.35896E+03 3.9590E+00<br>1.95601E-01 3.2827E-04   | ICG-109<br>ICG-141<br>ICG-144<br>ICM-243<br>ICM-247<br>ICM-248<br>ICG-57<br>ICG-60<br>ICG-60<br>ICG-134  |  |                   |              |                      |  |   |               | •                                       |                                |             |               |                    |
| 1.45572E-01 2.4431E-02<br>1.90789E+01 3.2020E-02<br>4.92551E+00 8.2665E-03<br>5.31592E-01 8.9214E-04<br>1.44965E-02 2.4329E-05<br>1.47134E-02 2.4693E-05<br>3.15485E-03 5.2947E-06<br>3.15485E-03 5.2947E-06   | CG-109<br>CG-141<br>CG-144<br>CM-243<br>CM-247<br>CM-248<br>CO-57  |  |                   |              |                      |  |   |               |   |                                |             |               |                    |
| 1.45572E-01 2.4431E-02<br>1.90789E+01 3.2020E-02<br>4.92551E+00 8.2665E-02<br>5.31592E-01 8.9214E-04<br>1.44965E-02 2.4329E-05<br>2.85632E-02 4.7937E-05<br>1.47134E-02 2.4693E-05   | CG-109<br>CG-141<br>CG-144<br>CG-243<br>CM-243<br>CM-247<br>CM-248   |  |                   |              |                      |  |   |               |   |                                |             |               |                    |
| 1.45572E-01 2.4431E-0x<br>1.90789E+01 3.2020E-0;<br>4.92551E+00 8.2665E-0;<br>5.31592E-01 8.9214E-04<br>1.44965E-02 2.4329E-05<br>2.85632E-02 4.7937E-05   | CG-109<br>CG-141<br>CG-144<br>CG-243   |  |                   |              |                      |  |   |               |   |                                |             |               |                    |
| 1.45572E-01 2.4431E-02<br>1.90789E+01 3.2020E-02<br>4.92551E+00 8.2665E-03<br>5.31592E-01 8.9214E-04<br>1.44965E-02 2.4329E-05   | Cd-109<br>Ce-141<br>Ce-144<br>Cm-243   |  |                   |              |                      |  |   |               |   |                                |             |               |                    |
| 1.45572E-01 2.4431E-02<br>1.90789E+01 3.2020E-02<br>4.92551E+00 8.2665E-03<br>5.31607E-01 8.9214E-04   | Cd-109<br>Ce-141<br>Ce-144   |  |                   |              |                      |  |   |               |   |                                |             |               |                    |
| 1.45572E-01 2.4431E-04<br>1.90789E+01 3.2020E-02   | Cd-109   |  |                   | -            | 11.6000              |  | <1.0000E+03                             | 0 <2.0000E+01 | 0 1.2000E+00                            | 0.1150                         | 11.6000     | -             |                    |
| 1.45572E-01 2.4431E-04   |  |  |                   | (DESCRIBE)   |                      |  |   |               |   |                                |             |               |                    |
|  | Am-241   | N N  | Oxide/NP          | 99 - OTHER   | 0.3285               |  | <1.6700E-05                             | 2 <3.3400E-07 | 1.2000E-02                              | 104.3263                       | 0.3285      |               |                    |
|  | 93<br>13   |  |                   |              |                      | 26.1   |   |               |   |                                |             | 4             | 56172/TNR000005397 |
|  | SNM [3.3590E-03 g]   | -  |                   | !            |                      |  |   |               | _                                       |                                |             | *             |                    |
| 9.3583E+02 2.5293E+01  | Total  | -  |                   |              |                      |  |   |               |   | †                              |             |               |                    |
| 9.3583E+02 2.5293E-  | Subtotal   |  |                   |              |                      |  |   |               |   |                                |             |               |                    |
| 1.55149E-01 1.5024E-03   |  |  |                   |              |                      |  |   |               |   |                                |             |               |                    |
| 2.55738E+04 2 4765E+02 6 6932E   |  |  | -                 | l            |                      |  |   | •             | <del></del>                             |                                |             |               |                    |
| 1.11707E+01 1.0817E-01 2 9236E   |  |  |                   |              |                      | -  | *************************************** |               |   |                                |             |               |                    |
| 1.44147E+03 1 3959E+01 3.7726E   |  |  |                   |              |                      |  |   |               | <del>-</del>                            | •                              |             |               |                    |
| 2.52386E+04 2.4440E+02 6.6055E   |  |  |                   |              |                      |  | í                                       |               |   |                                |             |               |                    |
| 2.92262E+03 2 8302E+01 7 6491E   |  |  |                   |              |                      |  |   | 4             |   | _                              |             | -             |                    |
| 1.70470E+00 1.6508E-02 4.4616E   | [1.9889E-11  |  |                   |              |                      |  |   |               |   |                                |             |               | -                  |
| kg] 9.05972E-02 8.7731E-04 2.37  | Th-232 [2.1933E-04]  | -  |                   |              |                      |  |   |               | · .                                     |                                |             |               |                    |
| pCl/gm MBq mCi   | RADIONUCLIDES  |  |                   |              | (F13)                |  | Commission                              | 1             |   |                                |             |               |                    |
| THE PROPERTY OF THE PROPERTY O |  |  | 3) AGEN           | (See Note 3) | (m3)                 | Note 2A)                                       | BETA-                                   | ALPHA         |   | (ton)                          | (ft3)       |               |                    |
| CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY   |  | ING CHECKLING                                      |                   |              | CONTAINER            | /See Note 2 s                                  | siiii (oociiiz)                         |               |   | (kg)                           | (m3)        | Note 1A)      | 1-1                |
| L RADIONUCLIDES AND ACTIVITY (MBq) AND   |  |  | ION FORM          | STA          | WASTE                | DESCRIPTOR                                     | (mbq/100cm2)                            |               |   | WEIGHT                         |             | (See Note 1 & | NUMBER(S)          |
|  |  | W.   |                   |              | APPROXIMATE          | WASTE  | CONTAMINATION                           | ,             | RADIATION                               | CONTAINER                      | VOLUME      | DESCRIPTION   | NUMBER/            |
| RADIOLOGICAL DESCRIPTION   | 15   | CHEMICAL DESCRIPTION                               | 14. CHEMIC        |              | PHYSICAL DESCRIPTION | P  | HREACE                                  | -<br>10       |   | WASTE                          | -           | CONTAINER     | CONTAINER          |
|  | T TYPE IN CONTAINING   | LEOD EVOR MASTE                                    | WASTE DESCRIPTION |              |                      |  |   |               |   | DISPOSAL CONTAINER DESCRIPTION | DISPOSAL CO | 6             |                    |
| 3. PAGE 2 OF 4 PAGE(S)   |  |  |                   | _            | ONTINUATION)         | CONTAINER AND WASTE DESCRIPTION (CONTINUATION) | ND WASTE D                              | NTAINER A     |   |                                |             |               |                    |
| ETTP-10-308  |  |  |                   |              |                      | MANIFEST                                       | WASTE                                   |               |   |                                |             |               |                    |
| utions, LLC 2. MANIFEST NUMBER   | EnergySolutions, LLC   |  |                   |              | DACTIVE              | X A C  |   |               | •                                       |                                |             |               |                    |