**Task 21 - Development of Systems Engineering Applications
for Decontamination and Decommissioning
Activities**

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TASK 21 – DEVELOPMENT OF SYSTEMS ENGINEERING APPLICATIONS FOR DECONTAMINATION AND DECOMMISSIONING ACTIVITIES

INTRODUCTION

Over the last 20 years, the use of systems engineering has been recognized as a powerful tool to aid industry in developing better products in shorter periods of time. More recently, systems engineering has been recognized for its ability to help in developing programs and projects much broader than a single technology. One of the major strengths of systems engineering is its ability to bring together industrial partners, stakeholders, and the public interest.

Within this project, a systems engineering approach is being applied to optimally identify and link potential decontamination and decommissioning (D&D) technologies with the needs of the sites. The key is to fully understand the cost and waste generation factors for each technology within each scenario (facility, group of facilities, site, Y).

OBJECTIVES

The objectives of this task are to:

- Develop a model (paper) to estimate the cost and waste generation of cleanup within the Environmental Management (EM) complex.
- Identify technologies applicable to D&D operations within the EM complex.
- Develop a database of facility information as linked to project baseline summaries (PBSs).

The above objectives are carried out through the following four subtasks: Subtask 1 – D&D Model Development, Subtask 2 – Technology List, Subtask 3 – Facility Database, and Subtask 4 – Incorporation into a User Model.

ACCOMPLISHMENTS

A significant amount of work has been accomplished within the last six months as discussed below by subtask.

Subtask 1 – D&D Model Development

A model was developed to encompass all aspects of D&D operations within the EM complex. The D&D model developed is shown in Appendix A.

The model includes the following stages of D&D:

- Precharacterization
- Decontamination
- Cutting and sizing
- Postcharacterization
- Demolition
- Disposal
- Surveillance and maintenance
- Worker safety and health
- Temporary utilities

Each of the above stages are further divided into material types and surface types shown below:

- Material types
 - Concrete
 - Metal
 - Wood
 - Lead brick
 - Asbestos
 - Transite
- Surface types
 - Floors
 - Walls
 - Ceilings
 - Structural steel
 - Tubing
 - Piping
 - Pipe lagging
 - Glove boxes

The model developed is extremely complex in application but simplistic in design. Many of the operations are simplified to allow the minimal amount of information necessary to perform the calculations.

The paper model was provided to Alias Group Inc. for inclusion into its overall EM modeling efforts as discussed in Subtask 4.

Subtask 2 – Technology List

The ability to predict the costs and waste generation rates for cleanup of the EM complex depends upon the technologies available for application to the cleanup effort. Significant emphasis has been placed by the Office of Science & Technology on the development of new technologies and seeking out existing technologies for application. In addition to identifying the technologies, cost and performance information is necessary to allow accurate predictions for a given technology.

Version 2.1 of the technology list was provided to the U.S. Department of Energy (DOE) in September 1998. Version 2.1 as submitted can be found in Appendix B and is summarized below.

A total of 533 technologies have been identified for use in EM D&D activities, with 126 considered alternative (innovative) and 407 considered baseline. To date, only the innovative technology status reports (ITSRs) generated to summarize the results of technology evaluations within the D&D focus area (DDFA) large-scale demonstration project (LSDP) program appear to provide reasonable cost data. The work breakdown structure (WBS) of the ITSRs is a structured methodology that attempts to include the cost for all facets of utilizing a technology from mobilization to operation, maintenance, decontamination, and eventual demobilization. Even the costs of human factors such as productivity loss and personal protective equipment (PPE), set up of support equipment, and disposal of PPE are included.

Data for determination of fixed and variable costs as well as secondary waste generation (where applicable) were found in 44 ITSRs prepared for DDFA-sponsored LSDPs. Among these, however, only 22 covered technologies that are suitable for use in the current version of the D&D model.

Subtask 3 – Facility Database

The facility database houses the information related to the sites, facilities, and PBSs. In addition, it houses all of the technology information generated in Subtask 2. Work within this subtask is divided between searching out the necessary information and developing a relational database that can be accessed by the model coder (Alias Group Inc.).

Locating information related to facilities, sites, and PBSs has proven to be extremely difficult. There is no single site that houses all of the information necessary to make accurate predictions, and, to date, much of the information necessary to operate the model across the entire EM complex is lacking. When essential data cannot be found, engineering estimates are developed to fill the information void. The following summarizes the information within the facilities database.

Presently, there are 76 PBSs encompassing deactivation and decommissioning activities at the DOE EM sites. Among the 76 D&D PBSs, only 35 entail facility D&D, while 39 of the PBSs do not list a single facility or release site. There are 1893 properties classified as facilities, 2298

It is worth noting that there were many matches where the facility description given for a PBS matched verbatim the property description given in the FIMS. More commonly though, matches were made using identification codes. It was apparent that many buildings had at least one alias or their mission may have changed between population of the FIMS and generation of the PBSs.

The database structure to hold all of the facility information is shown in Appendix C. The structure is extremely complex to allow various links to be formed between the technologies, needs, PBSs, and facilities. The comparison of variable names within the model and the field names in the database is shown in Appendix D.

Subtask 4 – Incorporation into a User Model

As mentioned previously, the paper model and facility database have been provided to Alias Group Inc. for inclusion into its overall EM complex model. It is noted that the user interface necessary to operate the model will be extremely complex to allow the user full control of the model. Upon completion, the computer model will allow the user to match technologies and needs, estimate the costs and wastes associated within a given scenario, plan deployment opportunities, and optimize the overall planning of D&D activities across the EM complex.

FUTURE WORK

The following activities are expected to continue through the next six months of this task:

- D&D Model Development
 - Based on user feedback, modify and enhance the model
 - Add in additional model features as requested, such as work plan acceleration and capping and monitoring
- Technology List
 - Develop cost and performance information for the database as new ITSRS are completed.
 - Add in new technologies as they are identified
 - Add in international technologies
- Facility Database
 - Continue tracking information about facilities and their relationships to the PBSs
 - Update the database with new needs and PBS information as it becomes available
 - Perform database analyses to aid in the linkage and work package exercises
- Incorporation into a User Model
 - Provide all updates to Alias Group Inc. for inclusion into the computer model
 - Participate in meetings to present the model and related information

APPENDIX A

D&D MODEL

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LEGEND

The following convention is used to differentiate between variables used in the D&D Model equations.

Function of facility type

Function of facility

Specific to technology

1.0 Basic Model Information

1.1 General

- a) Area Total Wall
= $\sqrt{\text{Size}} \times \text{Height} \times 4 \times (1 + \text{Wall Multiplier})$
- b) AreaV Wall
= $\sqrt{\text{Size}} \times \text{Height} \times 4 \times (1 + (\text{Wall Multiplier} / 2))$
Reflects area of only one side of a common wall
- c) Area Total Ceiling
= Size
- d) Area Total Floor
= Size

1.2 Structural Steel

- a) Length Small Structural Steel
= $\sqrt{\text{Size}} \times (\sqrt{\text{Size} / \text{Small Structural Steel Factor}} + 1)$
- b) Length Large Structural Steel
= $(\sqrt{\text{Size} / \text{Large Structural Steel Factor}} + 1) \times (\sqrt{\text{Size} / (3 \times \text{Large Structural Steel Factor})} + 1) \times \text{Height}$

1.3 Tubing

- a) Length Tubing
= $\text{Size} \times \text{Tubing Factor}$

1.4 Small Piping

- a) Length Small Piping
= $\text{Size} \times \text{Small Pipe Factor}$

1.5 Large Piping

- a) Length Large Piping
= $\text{Size} \times \text{Large Pipe Factor}$

1.6 Ducting

- a) Length Ducting
= $\text{Size} \times \text{Ducting Factor}$

1.7 Lead Brick

- a) Number Lead Bricks

$$= \text{Size} \times \text{Lead Brick Factor}$$

1.8 Glove Boxes

a) Number Glove Boxes
 $= \text{@round}(\text{Size} \times \text{Box Factor})$

1.9 Asbestos – Pipe Lagging and Other

a) Length Small Pipe Lagging
 $= \text{Length Small Piping} \times \text{Small Pipe Lagging Factor}$

b) Length Large Pipe Lagging
 $= \text{Length Large Piping} \times \text{Large Pipe Lagging Factor}$

c) Area Insulation
 $= \sqrt{\text{Size}} \times 4 \times \text{Height}$

1.10 Transite

a) Area Transite
 $= \text{Size} \times \text{Transite Factor}$

2.0 CONCRETE

2.1 Basic Information

2.1.1 Walls

a) Area Concrete Wall
 $= \text{Area Total Wall} \times \% \text{ area concrete wall}$

b) AreaV Concrete Wall
 $= \text{AreaV Wall} \times \% \text{ area concrete wall}$

c) Area HR Thin Wall
 $= \text{Area Concrete Wall} \times \% \text{ area HR Thin Wall}$

d) AreaV HR Thin Wall
 $= \text{AreaV Concrete Wall} \times \% \text{ area HR Thin Wall}$

e) Area HR Thick Wall
 $= \text{Area Concrete Wall} \times \% \text{ area HR Thick Wall}$

f) AreaV HR Thick Wall
 $= \text{AreaV Concrete Wall} \times \% \text{ area HR Thick Wall}$

g) Area MR Thin Wall
 $= \text{Area Concrete Wall} \times \% \text{ area MR Thin Wall}$

h) AreaV MR Thin Wall

$$= \text{AreaV Concrete Wall} \times \underline{\% \text{ area MR Thin Wall}}$$

i) Area MR Thick Wall

$$= \text{Area Concrete Wall} \times \underline{\% \text{ area MR Thick Wall}}$$

j) AreaV MR Thick Wall

$$= \text{AreaV Concrete Wall} \times \underline{\% \text{ area MR Thick Wall}}$$

k) Area UnR Thin Wall

$$= \text{Area Concrete Wall} \times \underline{\% \text{ area UnR Thin Wall}}$$

l) AreaV UnR Thin Wall

$$= \text{AreaV Concrete Wall} \times \underline{\% \text{ area UnR Thin Wall}}$$

m) Area UnR Thick Wall

$$= \text{Area Concrete Wall} \times \underline{\% \text{ area UnR Thick Wall}}$$

n) AreaV UnR Thick Wall

$$= \text{AreaV Concrete Wall} \times \underline{\% \text{ area UnR Thick Wall}}$$

2.1.2 Ceilings

a) Area Concrete Ceiling

$$= \text{Area Total Ceiling} \times \underline{\% \text{ area concrete ceiling}}$$

b) Area HR Thin Ceiling

$$= \text{Area Concrete Ceiling} \times \underline{\% \text{ area HR Thin ceiling}}$$

c) Area HR Thick Ceiling

$$= \text{Area Concrete Ceiling} \times \underline{\% \text{ area HR Thick ceiling}}$$

d) Area MR Thin Ceiling

$$= \text{Area Concrete Ceiling} \times \underline{\% \text{ area MR Thin Ceiling}}$$

e) Area MR Thick Ceiling

$$= \text{Area Concrete Ceiling} \times \underline{\% \text{ area MR Thick Ceiling}}$$

f) Area UnR Thin Ceiling

$$= \text{Area Concrete Ceiling} \times \underline{\% \text{ area UnR Thin Ceiling}}$$

g) Area UnR Thick Ceiling

$$= \text{Area Concrete Ceiling} \times \underline{\% \text{ area UnR Thick Ceiling}}$$

2.1.3 Floors

a) Area Concrete Floor

$$= \text{Area Total Floor} \times \underline{\% \text{ area concrete floor}}$$

b) Area HR Thin Floor

$$= \text{Area Concrete Floor} \times \underline{\% \text{ area HR Thin Floor}}$$

c) Area HR Thick Floor

$$= \text{Area Concrete Floor} \times \underline{\% \text{ area HR Thick Floor}}$$

- d) Area MR Thin Floor
= Area Concrete Floor × % area MR Thin Floor
- e) Area MR Thick Floor
= Area Concrete Floor × % area MR Thick Floor
- f) Area UnR Thin Floor
= Area Concrete Floor × % area UnR Thin Floor
- g) Area UnR Thick Floor
= Area Concrete Floor × % area UnR Thick Floor

2.2 Pre-Characterization

2.2.1 Walls

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Concrete Wall Pre-Char.
= (*Cost Avg* × Area Concrete Wall × % area contaminated walls × contaminant factor) + *deployment cost*

2.2.2 Ceilings

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Concrete Ceiling Pre-Char.
= (*Cost Avg* × Area Concrete Ceiling × % area contaminated ceilings × contaminant factor) + *deployment cost*

2.2.3 Floors

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Concrete Floor Pre-Char.
= (*Cost Avg* × Area Concrete Floor × % area contaminated floors × contaminant factor) + *deployment cost*

2.3 Decontamination

2.3.1 Walls

Perform a to e for each contaminant (contaminant specific variables are: depth of contamination walls&ceilings, contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Number Passes Walls
= $\text{@trunc}(\text{depth contamination walls\&ceilings} / \text{thickness removed per pass}) + 1$
- b) Depth Concrete Wall Removed
= Number of Passes Walls $\times$ *thickness removed per pass*
- c) Weight Primary Waste Concrete Wall Decon
= Area Concrete Wall $\times$ % area contaminated walls $\times$ contaminant factor $\times$ depth concrete wall removed $\times$ concrete density
- d) Weight Secondary Waste Concrete Wall Decon
= Area Concrete Wall $\times$ % area contaminated walls $\times$ contaminant factor $\times$ number passes walls $\times$ (*sec. waste gen. rate / production rate*)
- e) Cost Concrete Wall Decon
= (Area Concrete Wall $\times$ % area contaminated walls $\times$ contaminant factor $\times$ number passes walls $\times$ *Cost Avg*) + *deployment cost*
- f) Average depth concrete wall removed
= $\text{sum} [\text{depth concrete wall removed (contaminant)} \times \text{contaminant factor}]$

2.3.2 Ceilings

Perform a to e for each contaminant (contaminant specific variables are: depth of contamination walls&ceilings, contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Number Passes Ceilings
= $\text{@trunc}(\text{depth contamination walls\&ceilings} / \text{thickness removed per pass}) + 1$
- b) Depth Concrete Ceiling Removed
= Number Passes Ceilings $\times$ *thickness removed per pass*
- c) Weight Primary Waste Concrete Ceiling Decon
= Area Concrete Ceiling $\times$ % area contaminated ceilings $\times$ contaminant factor $\times$ depth concrete ceiling removed $\times$ concrete density
- d) Weight Secondary Waste Concrete Ceiling decon
= Area Concrete Ceiling $\times$ % area contaminated ceilings $\times$ contaminant factor $\times$ number passes ceilings $\times$ (*sec. waste gen. rate / production rate*)
- e) Cost Concrete Ceiling Decon

= (Area Concrete Ceiling × % area contaminated ceilings × contaminant factor × number passes ceilings × Cost Avg) + deployment cost

f) Average depth concrete ceiling removed

= sum [depth concrete ceiling removed (contaminant) × contaminant factor]

2.3.3 Floors

Perform a to e for each contaminant (contaminant specific variables are: depth of contamination floors, contaminant factor)

Rad

Organic

Inorganic

Mercury

a) Number Passes Floors

= @trunc(depth of contamination floors / thickness removed per pass) + 1

b) Depth Concrete Floor Removed

= Number Passes Floors × thickness removed per pass

c) Weight Primary Waste Concrete Floor Decon

= Area Concrete Floor × % area contaminated floors × contaminant factor × depth concrete floor removed × concrete density

d) Weight Secondary Waste Concrete Floor Decon

= Area Concrete Floor × % area contaminated floors × contaminant factor × number passes floors × (sec. waste gen. rate / production rate)

e) Cost Concrete Floor Decon

= (Area Concrete Floor × % area contaminated floors × contaminant factor × number passes floors × Cost Avg) + deployment cost

f) Average depth concrete floor removed

= sum [depth concrete floor removed (contaminant) × contaminant factor]

2.4 Post-Characterization

2.4.1 Walls

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad

Organic

Inorganic

Mercury

a) Cost Concrete Wall Post-Char.

= (Cost Avg × Area Concrete Wall × % area contaminated walls × contaminant factor) + deployment cost

2.4.2 Ceilings

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad

Organic

Inorganic
Mercury

- a) Cost Concrete Ceiling Post-Char.
= (Cost Avg × Area Concrete Ceiling × % area contaminated ceilings × contaminant factor) +
deployment cost

2.4.3 Floors

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Concrete Floor Post-Char.
= (Cost Avg × Area Concrete Floor × % area contaminated floors × contaminant factor) +
deployment cost

2.5 Cutting/Sizing/Demolition

2.5.1 Walls

- a) Cost Concrete Wall Hot Spot Removal (for rad only)
= (Area HR Thin Wall × % area contaminated walls × contaminant factor × % hot spots walls
× Cost Avg × 16 + deployment cost) +
(Area HR Thick Wall × % area contaminated walls × contaminant factor × % hot spots walls
× Cost Avg × 33.6 + deployment cost) +
(Area MR Thin Wall × % area contaminated walls × contaminant factor × % hot spots walls
× Cost Avg × 12 + deployment cost) +
(Area MR Thick Wall × % area contaminated walls × contaminant factor × % hot spots walls
× Cost Avg × 25.6 + deployment cost) +
(Area UnR Thin Wall × % area contaminated walls × contaminant factor × % hot spots walls
× Cost Avg × 8 + deployment cost) +
(Area UnR Thick Wall × % area contaminated walls × contaminant factor × % hot spots walls
× Cost Avg × 16.8 + deployment cost)
- b) Cost Concrete Wall Demolition
= ((AreaV HR Thin Wall × (1 - (% area contaminated walls × % hot spots walls × contaminant
factor))) × Cost Avg × 2 + deployment cost) +
((AreaV HR Thick Wall × (1 - (% area contaminated walls × % hot spots walls × contaminant
factor))) × Cost Avg × 6 + deployment cost) +
(AreaV MR Thin Wall × (1 - (% area contaminated walls × % hot spots walls × contaminant
factor))) × Cost Avg × 1.5 + deployment cost) +
((AreaV MR Thick Wall × (1 - (% area contaminated walls × % hot spots walls × contaminant
factor))) × Cost Avg × 4.5 + deployment cost) +
((AreaV UnR Thin Wall × (1 - (% area contaminated walls × % hot spots walls × contaminant
factor))) × Cost Avg × 1 + deployment cost) +
((AreaV UnR Thick Wall × ((1 - (% area contaminated walls × % hot spots walls ×
contaminant factor))) × Cost Avg × 3 + deployment cost)

2.5.2 Ceilings

a) Cost Concrete Ceiling Hot Spot Removal (rad only)
 = (Area HR Thin Ceiling × % area contaminated ceilings × contaminant factor × % hot spots ceilings × Cost Avg × 16 + deployment cost) +
 (Area HR Thick Ceiling × % area contaminated ceilings × contaminant factor × % hot spots ceilings × Cost Avg × 33.6 + deployment cost) +
 (Area MR Thin Ceiling × % area contaminated ceilings × contaminant factor × % hot spots ceilings × Cost Avg × 12 + deployment cost) +
 (Area MR Thick Ceiling × % area contaminated ceilings × contaminant factor × % hot spots ceilings × Cost Avg × 25.6 + deployment cost) +
 (Area UnR Thin Ceiling × % area contaminated ceilings × contaminant factor × % hot spots ceilings × Cost Avg × 8 + deployment cost) +
 (Area UnR Thick Ceiling × % area contaminated ceilings × contaminant factor × % hot spots ceilings × Cost Avg × 16.8 + deployment cost)

b) Cost Concrete Ceiling Demolition
 = ((Area HR Thin Ceiling × (1 - (% area contaminated ceilings × % hot spots ceilings × contaminant factor))) × Cost Avg × 2 + deployment cost) +
 ((Area HR Thick Ceiling × (1 - (% area contaminated ceilings × % hot spots ceilings × contaminant factor))) × Cost Avg × 6 + deployment cost) +
 ((Area MR Thin Ceiling × (1 - (% area contaminated ceilings × % hot spots ceilings × contaminant factor))) × Cost Avg × 1.5 + deployment cost) +
 ((Area MR Thick Ceiling × (1 - (% area contaminated ceilings × % hot spots ceilings × contaminant factor))) × Cost Avg × 4.5 + deployment cost) +
 ((Area UnR Thin Ceiling × (1 - (% area contaminated ceilings × % hot spots ceilings × contaminant factor))) × Cost Avg × 1 + deployment cost) +
 (Area UnR Thick Ceiling × ((1 - (% area contaminated ceilings × % hot spots ceilings × contaminant factor))) × Cost Avg × 3 + deployment cost)

2.5.3 Floors

a) Cost Concrete Floor Hot Spot Removal (rad only)
 = (Area HR Thin Floors × % area contaminated floors × contaminant factor × % hot spots floors × Cost Avg × 16 + deployment cost) +
 (Area HR Thick Floors × % area contaminated floors × contaminant factor × % hot spots floors × Cost Avg × 33.6 + deployment cost) +
 (Area MR Thin Floors × % area contaminated floors × contaminant factor × % hot spots floors × Cost Avg × 12 + deployment cost) +
 (Area MR Thick Floors × % area contaminated floors × contaminant factor × % hot spots floors × Cost Avg × 25.6 + deployment cost) +
 (Area UnR Thin Floors × % area contaminated floors × contaminant factor × % hot spots floors × Cost Avg × 8 + deployment cost) +
 (Area UnR Thick Floors × % area contaminated floors × contaminant factor × % hot spots floors × Cost Avg × 16.8 + deployment cost)

b) Cost Concrete Floor Demolition
 = ((Area HR Thin Floor × (1 - (% area contaminated floors × % hot spots floors × contaminant factor))) × Cost Avg × 2 + deployment cost) +
 ((Area HR Thick Floor × (1 - (% area contaminated floors × % hot spots floors × contaminant factor))) × Cost Avg × 6 + deployment cost) +
 ((Area MR Thin Floor × (1 - (% area contaminated floors × % hot spots floors × contaminant factor))) × Cost Avg × 1.5 + deployment cost) +
 ((Area MR Thick Floor × (1 - (% area contaminated floors × % hot spots floors × contaminant factor))) × Cost Avg × 4.5 + deployment cost) +

$((\text{Area UnR Thin Floor} \times (1 - (\% \text{ area contaminated floors} \times \% \text{ hot spots floors} \times \text{contaminant factor}))) \times \text{Cost Avg} \times 1 + \text{deployment cost}) +$
 $(\text{Area UnR Thick Floor} \times ((1 - (\% \text{ area contaminated floors} \times \% \text{ hot spots floors} \times \text{contaminant factor}))) \times \text{Cost Avg} \times 3 + \text{deployment cost})$

2.6 Disposal

2.6.1 Walls

- a) Weight Concrete Wall Hot Spots (rad only)
- $$= ((\text{AreaV HR Thin Wall} \times (\text{thickness HR Thin} - (2 \times \text{depth concrete wall removed}))) + (\text{AreaV HR Thick Wall} \times (\text{thickness HR Thick} - (2 \times \text{depth concrete wall removed}))) + (\text{AreaV MR Thin Wall} \times (\text{thickness MR Thin} - (2 \times \text{depth concrete wall removed}))) + (\text{AreaV MR Thick Wall} \times (\text{thickness MR Thick} - (2 \times \text{depth concrete wall removed}))) + (\text{AreaV UnR Thin Wall} \times (\text{thickness UnR Thin} - (2 \times \text{depth concrete wall removed}))) + (\text{AreaV UnR Thick Wall} \times (\text{thickness UnR Thick} - (2 \times \text{depth concrete wall removed})))) \times (\% \text{ area contaminated walls} \times \text{contaminant factor} \times \% \text{ hot spots walls} \times \text{concrete density})$$
- b) Cost Concrete Wall Hot Spot Waste Transport
- $$= \text{weight concrete wall hot spots} \times \text{transport cost (rad)} \times \text{distance (rad)}$$
- c) Cost Concrete Wall Hot Spot Waste Disposal
- $$= \text{weight concrete wall hot spots} \times \text{primary waste disposal cost (rad)}$$
- d) Weight Free Release Concrete Wall
- $$= (((\text{AreaV HR Thin Wall} \times \text{thickness HR Thin}) + (\text{AreaV HR Thick Wall} \times \text{thickness HR Thick}) + (\text{AreaV MR Thin Wall} \times \text{thickness MR Thin}) + (\text{AreaV MR Thick Wall} \times \text{thickness MR Thick}) + (\text{AreaV UnR Thin Wall} \times \text{thickness UnR Thin}) + (\text{AreaV UnR Thick Wall} \times \text{thickness UnR Thick})) - (\% \text{ area contaminated walls} \times \text{Area Concrete Wall} \times \text{average depth concrete wall removed})) \times \text{concrete density} - \text{weight concrete wall hot spots}$$
- e) Cost Free Release Concrete Wall Disposal
- $$= \text{Weight Free Release Concrete Wall} \times \text{CD disposal cost}$$
- Perform f to i for each contaminant (contaminant specific variables are: transport cost, distance, primary waste disposal cost)
- Rad
- Organic
- Inorganic
- Mercury
- f) Cost Concrete Wall Decon Primary Waste Transport
- $$= \text{Weight Primary Waste Concrete Wall Decon} \times \text{transport cost (contaminant)} \times \text{distance (contaminant)}$$
- g) Cost Concrete Wall Decon Primary Waste Disposal
- $$= \text{Weight Primary Waste Concrete Wall Decon} \times \text{primary waste disposal cost (contaminant)}$$
- h) Secondary waste disposed on site. No allowance for contaminated HEPA filters.
- i) Cost Concrete Wall Decon Secondary Waste Disposal

= Weight Secondary Waste Concrete Wall Decon × **sec. waste disposal cost**

2.6.2 Ceilings

a) Weight Concrete Ceiling Hot Spots (rad only)

= ((Area HR Thin Ceiling × (thickness HR Thin - depth concrete ceiling removed)) +
 (Area HR Thick Ceiling × (thickness HR Thick - depth concrete ceiling removed)) +
 (Area MR Thin Ceiling × (thickness MR Thin - depth concrete ceiling removed)) +
 (Area MR Thick Ceiling × (thickness MR Thick - depth concrete ceiling removed)) +
 (Area UnR Thin Ceiling × (thickness UnR Thin - depth concrete ceiling removed)) +
 (Area UnR Thick Ceiling × (thickness UnR Thick - depth concrete ceiling removed))) ×
 (% area contaminated ceilings × contaminant factor × % hot spots ceilings × concrete
 density)

b) Cost Concrete Ceiling Hot Spot Waste Transport

= weight concrete ceiling hot spots × **transport cost (rad)** × **distance (rad)**

c) Cost Concrete Ceiling Hot Spot Waste Disposal

= weight concrete ceiling hot spots × **primary waste disposal cost (rad)**

d) Weight Free Release Concrete Ceiling

= (((Area HR Thin Ceiling × thickness HR Thin) +
 (Area HR Thick Ceiling × thickness HR Thick) +
 (Area MR Thin Ceiling × thickness MR Thin) +
 (Area MR Thick Ceiling × thickness MR Thick) +
 (Area UnR Thin Ceiling × thickness UnR Thin) +
 (Area UnR Thick Ceiling × thickness UnR Thick)) -
 (% area contaminated ceilings × Area Concrete Ceiling × average depth concrete ceiling
 removed)) × concrete density) - weight concrete ceiling hot spots

e) Cost Free Release Concrete Ceiling Disposal

= Weight Free Release Concrete Ceiling × **CD disposal cost**

Perform f to i for each contaminant (contaminant specific variables are: transport cost, distance, primary waste disposal cost)

Rad
 Organic
 Inorganic
 Mercury

f) Cost Concrete Ceiling Decon Primary Waste Transport

= Weight Primary Waste Concrete Ceiling Decon × **transport cost (contaminant)** × **distance (contaminant)**

g) Cost Concrete Ceiling Decon Primary Waste Disposal

= Weight Primary Waste Concrete Ceiling Decon × **primary waste disposal cost (contaminant)**

h) Secondary waste disposed on site. No allowance for contaminated HEPA filters.

i) Cost Concrete Ceiling Decon Secondary Waste Disposal

= Weight Secondary Waste Concrete Ceiling Decon × **sec. waste disposal cost**

2.6.3 Floors

- a) Weight Concrete Floor Hot Spots (rad only)
= ((Area HR Thin Floor × (thickness HR Thin - depth concrete floor removed)) +
(Area HR Thick Floor × (thickness HR Thick - depth concrete floor removed)) +
(Area MR Thin Floor × (thickness MR Thin - depth concrete floor removed)) +
(Area MR Thick Floor × (thickness MR Thick - depth concrete floor removed)) +
(Area UnR Thin Floor × (thickness UnR Thin - depth concrete floor removed)) +
(Area UnR Thick Floor × (thickness UnR Thick - depth concrete floor removed))) ×
(% area contaminated floors × contaminant factor × % hot spots floors × concrete density)
- b) Cost Concrete Floor Hot Spot Waste Transport
= weight concrete floor hot spots × **transport cost (rad)** × **distance (rad)**
- c) Cost Concrete Floor Hot Spot Waste Disposal
= weight concrete floor hot spots × **primary waste disposal cost (rad)**
- d) Weight Free Release Concrete Floor
= (((Area HR Thin Floor × thickness HR Thin) +
(Area HR Thick Floor × thickness HR Thick) +
(Area MR Thin Floor × thickness MR Thin) +
(Area MR Thick Floor × thickness MR Thick) +
(Area UnR Thin Floor × thickness UnR Thin) +
(Area UnR Thick Floor × thickness UnR Thick)) -
(% area contaminated floors × Area Concrete Floor × average depth concrete floor removed)) ×
concrete density) - weight concrete floor hot spots
- e) Cost Free Release Concrete Floor Disposal
= Weight Free Release Concrete Floor × **CD disposal cost**
- Perform f to i for each contaminant (contaminant specific variables are: transport cost, distance, primary waste disposal cost)
Rad
Organic
Inorganic
Mercury
- f) Cost Concrete Floor Decon Primary Waste Transport
= Weight Primary Waste Concrete Floor Decon × **transport cost (contaminant)** × **distance (contaminant)**
- g) Cost Concrete Floor Decon Primary Waste Disposal
= Weight Primary Waste Concrete Floor Decon × **primary waste disposal cost (contaminant)**
- h) Secondary waste disposed on site. No allowance for contaminated HEPA filters.
- i) Cost Concrete Floor Decon Secondary Waste Disposal
= Weight Secondary Waste Concrete Floor Decon × **sec. waste disposal cost**

3.0 METAL

3.1 Basic Information

3.1.1 Walls/Ceilings

- a) Area Metal Wall
= Area Total Wall × % area metal wall
- b) Area Metal Ceiling
= Area Total Ceiling × % area metal ceiling

3.1.2 Structural Steel

- a) Area Small Structural Steel
= Length Small Structural Steel × area/length small SS (area/length from reference)
- b) Area Large Structural Steel
= Length Large Structural Steel × area/length large SS (area/length from reference)
- c) Weight Small Structural Steel
= Length Small Structural Steel × weight/length small SS (weight/length from reference)
- d) Weight Large Structural Steel
= Length Large Structural Steel × weight/length large SS (weight/length from reference)
- e) Number Cuts Small Structural Steel
= @trunc(Length Small Structural Steel / 2)
- f) Number Cuts Large Structural Steel
= @trunc(Length Large Structural Steel / 2)

3.1.3 Tubing

- a) Area Tubing
= Length Tubing × area/length T (outside surface area)
(area/length from reference)
- b) Weight Tubing
= Length Tubing × weight/length T (weight/length from reference)
- c) Number Cuts Tubing
= @trunc(Length Tubing / 2)

3.1.4 Small Piping

- a) Area Small Piping Outside
= Length Small Piping × area/length OSP (area/length from reference)
- b) Area Small Piping Inside
= Length Small Piping × area/length ISP (area/length from reference)
- c) Weight Small Piping
= Length Small Piping × weight/length SP (weight/length from reference)
- d) Number Cuts Small Piping
= @trunc(Length Small Piping / 2)

3.1.5 Large Piping

- a) Area Large Piping Outside
= Length Large Piping × area/length OLP (area/length from reference)
- b) Area Large Piping Inside
= Length Large Piping × area/length OLP (area/length from reference)
- c) Weight Large Piping
= Length Large Piping × weight/length LP (weight/length from reference)
- d) Number Cuts Large Piping
= @trunc(Length Large Piping / 2)

3.1.6 Ducting

- a) Area Ducting Inside
= Length Ducting × area/length ID (for assumed depth and width)
- b) Area Ducting Outside
= Length Ducting × area/length OD
- c) Weight Ducting
= Length Ducting × weight/length D (from reference for given depth and width)
- d) Number Cuts Ducting
= @trunc(Length Ducting / 2)

3.1.7 Glove Boxes

- a) Area Glove Box Inside
= Number Glove Boxes × area/box I (for assumed depth and width)
- b) Area Glove Box Outside
= Number Glove Boxes × area/box O
- c) Weight Glove Boxes
= Number Glove Boxes × weight/box (from reference for given depth and width)

3.2 Pre-Characterization

3.2.1 Walls

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Metal Wall Pre-Char.
= (Cost Avg × Area Metal Wall × % area contaminated walls × contaminant factor) +
deployment cost

3.2.2 Ceilings

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Metal Ceiling Pre-Char.

$$= (\text{Cost Avg} \times \text{Area Metal Ceiling} \times \% \text{ area contaminated ceilings} \times \text{contaminant factor}) + \text{deployment cost}$$

3.2.3 Structural Steel

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Small Structural Steel Pre-Char.

$$= (\text{Cost Avg} \times \text{Area Small Structural Steel} \times \% \text{ area contaminated small SS} \times \text{contaminant factor}) + \text{deployment cost}$$

- b) Cost Large Structural Steel Pre-Char.

$$= (\text{Cost Avg} \times \text{Area Large Structural Steel} \times \% \text{ area contaminated large SS} \times \text{contaminant factor}) + \text{deployment cost}$$

3.2.4 Instrument Tubing

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Tubing Pre-Char.

$$= (\text{Cost Avg} \times \text{Area Tubing} \times \% \text{ area contaminated T} \times \text{contaminant factor}) + \text{deployment cost}$$

3.2.5 Small Piping

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Inside Small Piping Pre-Char.

$$= (\text{Cost Avg} \times \text{Area Small Piping Inside} \times \% \text{ area contaminated ISP} \times \text{contaminant factor}) + \text{deployment cost}$$

- b) Cost Outside Small Piping Pre-Char.

$$= (\text{Cost Avg} \times \text{Area Small Piping Outside} \times \% \text{ area contaminated OSP} \times \text{contaminant factor}) + \text{deployment cost}$$

3.2.6 Large Piping

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Inside Large Piping Pre-Char.
= (*Cost Avg* × Area Large Piping Inside × % area contaminated ILP × contaminant factor) +
deployment cost
- b) Cost Outside Large Piping Pre-Char.
= (*Cost Avg* × Area Large Piping Outside × % area contaminated OLP × contaminant factor) +
deployment cost

3.2.7 Ducting

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Inside Ducting Pre-Char.
= (*Cost Avg* × Area Ducting Inside × % area contaminated ID × contaminant factor) +
deployment cost
- b) Cost Outside Ducting Pre-Char.
= (*Cost Avg* × Area Ducting Outside × % area contaminated OD × contaminant factor) +
deployment cost

3.2.8 Glove Boxes

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Inside Glove Box Pre-Char.
= (*Cost Avg* × Area Glove Box Inside × % area contaminated IGB × contaminant factor) +
deployment cost
- a) Cost Outside Glove Box Pre-Char.
= (*Cost Avg* × Area Glove Box Outside × % area contaminated OGB × contaminant factor) +
deployment cost

3.3 Decontamination

3.3.1 Walls

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad

Organic
Inorganic
Mercury

- a) Weight Secondary Waste Metal Wall Decon
= Area Metal Wall × % area contaminated wall × contaminant factor × (sec. waste gen. rate / production rate)
- b) Cost Metal Wall Decon
= (Area Metal Wall × % area contaminated wall × contaminant factor × Cost Avg) + deployment cost

3.3.2 Ceilings

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Weight Secondary Waste Metal Ceiling decon
= Area Metal Ceiling × % area contaminated ceiling × contaminant factor × (sec. waste gen. rate / production rate)
- b) Cost Metal Ceiling Decon
= (Area Metal Ceiling × % area contaminated ceiling × contaminant factor × Cost Avg) + deployment cost

3.3.3 Structural Steel

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Small Structural Steel Decon
= (Area Small Structural Steel × % area contaminated small SS × contaminant factor × Cost Avg) + deployment cost
- b) Cost Large Structural Steel Decon
= (Area Large Structural Steel × % area contaminated large SS × contaminant factor × Cost Avg) + deployment cost
- c) Weight Secondary Waste Small Structural Steel Decon
= Area Small Structural Steel × % area contaminated small SS × contaminant factor × (sec. waste gen. rate / production rate)
- d) Weight Secondary Waste Large Structural Steel Decon
= Area Large Structural Steel × % area contaminated large SS × contaminant factor × (sec. waste gen. rate / production rate)

3.3.4 Glove Boxes

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad

Organic
Inorganic
Mercury

- a) Weight Secondary Waste Inside Glove Box Decon
= Area Glove Box Inside × % area contaminated IGB × contaminant factor × (sec. waste gen. rate / production rate)
- b) Weight Secondary Waste Outside Glove Box Decon
= Area Glove Box Outside × % area contaminated OGB × contaminant factor × (sec. waste gen. rate / production rate)
- c) Cost Inside Glove Box Decon
= (Area Glove Box Inside × % area contaminated IGB × contaminant factor × Cost Avg) + deployment cost
- d) Cost Outside Glove Box Decon
= (Area Glove Box Outside × % area contaminated OGB × contaminant factor × Cost Avg) + deployment cost

3.4 Post-Characterization

3.4.1 Walls

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Metal Wall Post-Char.
= (Cost Avg × Area Metal Wall × % area contaminated walls × contaminant factor) + deployment cost

3.4.2 Ceilings

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Metal Ceiling Post-Char.
= (Cost Avg × Area Metal Ceiling × % area contaminated ceilings × contaminant factor) + deployment cost

3.4.3 Structural Steel

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Small Structural Steel Post-Char.

= (*Cost Avg* × *Area Small Structural Steel* × % **area contaminated small SS** × **contaminant factor**) + *deployment cost*

b) **Cost Large Structural Steel Post-Char.**

= (*Cost Avg* × *Area Large Structural Steel* × % **area contaminated large SS** × **contaminant factor**) + *deployment cost*

3.4.4 Glove Boxes

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

a) **Cost Inside Glove Box Post-Char.**

= (*Cost Avg* × *Area Glove Box Inside* × % **area contaminated IGB** × **contaminant factor**) + *deployment cost*

b) **Cost Outside Glove Box Post-Char.**

= (*Cost Avg* × *Area Glove Box Outside* × % **area contaminated OGB** × **contaminant factor**) + *deployment cost*

3.5 Cutting/Sizing/Demolition

3.5.1 Walls

a) **Cost Metal Wall Cutting/Sizing/Demolition**

= (*Area Metal Wall* × *Cost Avg* × 1.9) + *deployment cost*

3.5.2 Ceilings

a) **Cost Metal Cutting/Sizing/Demolition**

= (*Area Metal Ceiling* × *Cost Avg* × 1.7) + *deployment cost*

3.5.3 Structural Steel

a) **Cost Cutting/Sizing Small Structural Steel**

= (*Number Cuts Small Structural Steel* × *Cost Avg* × 0.725) + *deployment cost*

b) **Cost Cutting/Sizing Large Structural Steel**

= (*Number Cuts Large Structural Steel* × *Cost Avg* × 2.077) + *deployment cost*

3.5.4 Instrument Tubing

a) **Cost Cutting/Sizing Tubing**

= (*Number Cuts Tubing* × *Cost Avg* × 0.0345) + *deployment cost*

3.5.5 Small Piping

- a) Cost Cutting/Sizing Small Piping
= (Number Cuts Small Piping × *Cost Avg* × 0.681) + *deployment cost*

3.5.6 Large Piping

- a) Cost Cutting/Sizing Large Piping
= (Number Cuts Large Piping × *Cost Avg* × 2.505) + *deployment cost*

3.5.7 Ducting

- a) Cost Cutting/Sizing Ducting
= (Number Cuts Ducting × *Cost Avg* × 0.965) + *deployment cost*

3.5.8 Glove Boxes

- a) Cost Cutting/Sizing/Demolition Glove Boxes
= (Number Glove Boxes × *Cost Avg* × 5.327) + *deployment cost*

3.6 Disposal

3.6.1 Walls

- a) Weight Metal Wall Cutting/Sizing (based on assumed metal gauge or thickness)
= Area Metal Wall × metal density
- b) Cost Metal Wall Cutting/Sizing Disposal
= Weight Metal Wall Cutting/Sizing × **CD disposal cost**
- c) Secondary waste disposed of on site. No allowance for contaminated HEPA filters.

Perform d for each contaminant

Rad
Organic
Inorganic
Mercury

- d) Cost Metal Wall Decon Secondary Waste Disposal
= Weight Secondary Waste Metal Wall Decon × **sec. waste disposal cost**

3.6.2 Ceilings

- a) Weight Metal Ceiling Cutting/Sizing (based on assumed metal gauge or thickness)
= Area Metal Ceiling × metal density
- b) Cost Metal Ceiling Cutting/Sizing Disposal
= Weight Metal Ceiling Cutting/Sizing × **CD disposal cost**
- c) Secondary waste disposed of on site. No allowance for contaminated HEPA filters.

Perform d for each contaminant

Rad
Organic
Inorganic
Mercury

- d) Cost Metal Ceiling Decon Secondary Waste Disposal
= Weight Secondary Waste Metal Ceiling Decon × **sec. waste disposal cost**

3.6.3 Structural Steel

- a) Cost Small Structural Steel Cutting/Sizing Disposal
= Weight Small Structural Steel × **CD disposal cost**
- b) Cost Large Structural Steel Cutting/Sizing Disposal
= Weight Large Structural Steel × **CD disposal cost**
- c) Secondary waste disposed of on site. No allowance for contaminated HEPA filters.

Perform d and e for each contaminant

Rad
Organic
Inorganic
Mercury

- d) Cost Small Structural Steel Decon Secondary Waste Disposal
= Weight Secondary Waste Small Structural Steel Decon × **sec. waste disposal cost**
- e) Cost Large Structural Steel Decon Secondary Waste Disposal
= Weight Secondary Waste Large Structural Steel Decon × **sec. waste disposal cost**

3.6.4 Instrument Tubing

- a) Cost Tubing Cutting/Sizing Disposal
= Weight Tubing × **CD disposal cost**

3.6.5 Small Piping

- a) Cost Small Piping Cutting/Sizing Disposal
= Weight Small Piping × **CD disposal cost**

3.6.6 Large Piping

- a) Cost Large Piping Cutting/Sizing Disposal
= Weight Large Piping × **CD disposal cost**

3.6.7 Ducting

- a) Cost Ducting Cutting/Sizing Disposal
= Weight Ducting × **CD disposal cost**

3.6.8 Glove Boxes

a) Cost Glove Box Cutting/Sizing Disposal
= Weight Glove Boxes × **CD disposal cost**

b) Secondary waste disposed of on site. No allowance for contaminated HEPA filters.

Perform c and d for each contaminant

Rad
Organic
Inorganic
Mercury

c) Cost Inside Glove Box Decon Secondary Waste Disposal
= Weight Secondary Waste Inside Glove Box Decon × **sec. waste disposal cost**

d) Cost Outside Glove Box Decon Secondary Waste Disposal
= Weight Secondary Waste Outside Glove Box Decon × **sec. waste disposal cost**

4.0 Wood

4.1 Basic Information

a) Area Wood Wall
= Area Total Wall × % area wood wall

b) Area Wood Ceiling
= Area Total Ceiling × % area wood ceiling

c) Area Wood Floor
= Area Total Floor × % area wood floor

4.2 Pre-Characterization

4.2.1 Walls

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

a) Cost Wood Wall Pre-Char.
= (Cost Avg × Area Wood Wall × % area contaminated walls × contaminant factor) +
deployment cost

4.2.2 Ceilings

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
Organic
Inorganic
Mercury

- a) Cost Wood Ceiling Pre-Char.

$$= (\text{Cost Avg} \times \text{Area Wood Ceiling} \times \% \text{ area contaminated ceilings} \times \text{contaminant factor}) + \text{deployment cost}$$

4.2.3 Floors

Perform for each contaminant (contaminant specific variables are: contaminant factor)

Rad
 Organic
 Inorganic
 Mercury

- a) Cost Wood Floor Pre-Char.

$$= (\text{Cost Avg} \times \text{Area Wood Floor} \times \% \text{ area contaminated floors} \times \text{contaminant factor}) + \text{deployment cost}$$

4.3 Cutting/Sizing/Demolition

4.3.1 Walls

- a) Cost Wood Wall Cutting/Sizing/Demolition

$$= (\text{Area Wood Wall} \times \text{Cost Avg}) + \text{deployment cost}$$

4.3.2 Ceilings

- a) Cost Wood Ceiling Cutting/Sizing/Demolition

$$= (\text{Area Wood Ceiling} \times \text{Cost Avg}) + \text{deployment cost}$$

4.3.3 Floors

- a) Cost Wood Floor Cutting/Sizing/Demolition

$$= (\text{Area Wood Floor} \times \text{Cost Avg}) + \text{deployment cost}$$

4.4 Disposal

4.4.1 Walls

- a) Weight Wood Wall Cutting/Sizing CD Waste

$$= \text{Area Wood Wall} \times \text{wood wall density} \times (1 - \% \text{ area contaminated walls})$$

[2x4 const., 16" center, 1/2" dry wall]

b) Cost Wood Wall Cutting/Sizing CD Waste Disposal

$$= \text{Weight Wood Wall Cutting/Sizing CD Waste} \times \text{CD disposal cost}$$

Perform c, d and e for each contaminant

Rad
 Organic
 Inorganic
 Mercury

- c) Weight Wood Wall Cutting/Sizing Primary Waste

= Area Wood Wall × wood wall density × % area contaminated walls × contaminant factor

- d) Cost Wood Wall Cutting/Sizing Primary Waste Transport
= Weight Wood Wall Cutting/Sizing Primary Waste × **transport cost (contaminant) × distance (contaminant)**
- e) Cost Wood Wall Cutting/Sizing Primary Waste Disposal
= Weight Wood Wall Cutting/Sizing Primary Waste × **primary waste disposal cost (contaminant)**

4.4.2 Ceilings

- a) Weight Wood Ceiling Cutting/Sizing CD Waste
= Area Wood Ceiling × wood ceiling density × (1 - % area contaminated ceilings)
[2x4 const., 16" center, 1/2" dry ceiling]
- b) Cost Wood Ceiling Cutting/Sizing CD Waste Disposal
= Weight Wood Ceiling Cutting/Sizing CD Waste × **CD disposal cost**
- Perform c, d and e for each contaminant
Rad
Organic
Inorganic
Mercury
- c) Weight Wood Ceiling Cutting/Sizing Primary Waste
= Area Wood Ceiling × wood ceiling density × % area contaminated ceilings × **contaminant factor**
- d) Cost Wood Ceiling Cutting/Sizing Primary Waste Transport
= Weight Wood Ceiling Cutting/Sizing Primary Waste × **transport cost (contaminant) × distance**
- e) Cost Wood Ceiling Cutting/Sizing Primary Waste Disposal
= Weight Wood Ceiling Cutting/Sizing Primary Waste × **primary waste disposal cost (contaminant)**

4.4.3 Floors

- a) Weight Wood Floor Cutting/Sizing CD Waste
= Area Wood Floor × wood floor density × (1 - % area contaminated floors)
[2x6 const., 16" center, 3/4" flooring]
- b) Cost Wood Floor Cutting/Sizing CD Waste Disposal
= Weight Wood Floor Cutting/Sizing CD Waste × **CD disposal cost**

Perform c, d and e for each contaminant
Rad
Organic
Inorganic
Mercury

- c) Weight Wood Floor Cutting/Sizing Primary Waste

$$= \text{Area Wood Floor} \times \text{wood floor density} \times \% \text{ area contaminated floors} \times \text{contaminant factor}$$

- d) Cost Wood Floor Cutting/Sizing Primary Waste Transport
 $= \text{Weight Wood Floor Cutting/Sizing Primary Waste} \times \text{transport cost (contaminant)} \times \text{distance (contaminant)}$
- e) Cost Wood Floor Cutting/Sizing Primary Waste Disposal
 $= \text{Weight Wood Floor Cutting/Sizing Primary Waste} \times \text{primary waste disposal cost (contaminant)}$

5.0 LEAD BRICK

5.1 Basic Information

- a) Weight Lead Bricks
 $= \text{Number Lead Bricks} \times \text{weight/brick}$
- b) Area Lead Bricks
 $= \text{Number Lead Bricks} \times \text{Lead Brick Area}$

5.2 Pre-Characterization

Perform for rad contaminant only

- a) Cost Lead Brick Pre-Char.
 $= (\text{Cost Avg} \times \text{Area Lead Bricks} \times \% \text{ lead bricks contaminated} \times 1.25) + \text{deployment cost}$

5.3 Decontamination

Perform for rad contaminant only

- a) Cost Lead Brick Decon
 $= (\text{Area Lead Bricks} \times \% \text{ lead bricks contaminated} \times \text{Cost Avg} \times 1.25) + \text{deployment cost}$
- b) Weight Primary Waste Lead Brick Decon
 $= \text{Number Lead Bricks} \times \% \text{ lead bricks contaminated} \times \text{Volume} \times \text{lead density}$
- where Volume = $(2 \times L \times W \times \text{thickness removed per pass}) + (2 \times L \times (H - (2 \times \text{thickness removed per pass})) \times \text{thickness removed per pass}) + (2 \times (W - (2 \times \text{thickness removed per pass})) \times (H - (2 \times \text{thickness removed per pass})) \times \text{thickness removed per pass})$
- c) Weight Secondary Waste Lead Brick Decon
 $= \text{Area Lead Bricks} \times \% \text{ lead bricks contaminated} \times (\text{sec. waste gen. rate} / \text{production rate})$

5.4 Post-Characterization

Perform for rad contaminant only

- a) Cost Lead Brick Post-Char.
 $= (\text{Cost Avg} \times \text{Area Lead Bricks} \times \% \text{ lead bricks contaminated} \times 1.25) + \text{deployment cost}$

5.5 Cutting/Sizing/Demolition

- a) Cost Lead Brick Removal
 $= (\text{Number Lead Bricks} \times \text{Cost Avg}) + \text{deployment cost}$

5.6 Disposal

Perform for rad contaminant only

- a) Secondary waste disposed of on site. No allowance for contaminated HEPA filters.
- b) Cost Lead Brick Decon Primary Waste Transport
= Weight Primary Waste Lead Brick Decon × **transport cost (rad)** × **distance (rad)**
- c) Cost Lead Brick Decon Primary Waste Disposal
= Weight Primary Waste Lead Brick Decon × **primary waste disposal cost (rad)**
- d) Cost Lead Brick Decon Secondary Waste Disposal
= Weight Secondary Waste Lead Brick Decon × **sec. waste disposal cost**
- e) Cost Active Lead Brick Transport
= weight/brick × Number Lead Bricks × % **lead bricks contaminated** × % **active bricks** × **transport cost (rad)** × **distance (rad)**
- f) Cost Active Lead Brick Disposal
= weight/brick × Number Lead Bricks × % **lead bricks contaminated** × % **active bricks** × **primary waste disposal cost (rad)**
- g) Cost Decon Lead Brick Disposal
= (Weight Lead Bricks – Weight Primary Waste Lead Brick Decon - (Number Lead Bricks × % **lead bricks contaminated** × % **active bricks** × weight/brick)) × **disposal cost lead brick**

6.0 ASBESTOS

6.1 Basic Information

- a) Weight Small Pipe Lagging
= Length Small Pipe Lagging × weight/length lagging SP
- b) Weight Large Pipe Lagging
= Length Large Pipe Lagging × weight/length lagging LP
- c) Weight Insulation
= Area Insulation × weight/area insulation

6.2 Pre-Characterization

- a) Cost Small Pipe Lagging Pre-Char.
= (Cost Avg × Length Small Pipe Lagging) + *deployment cost*
- b) Cost Large Pipe Lagging Pre-Char.
= (Cost Avg × Length Large Pipe Lagging) + *deployment cost*
- c) Cost Insulation Pre-Char.
= (Cost Avg × Area Insulation) + *deployment cost*

6.3 Decontamination

- a) Decontamination is equivalent to removal.
- b) Cost Small Pipe Lagging Decon
= (Length Small Pipe Lagging × Cost Avg × 1) + *deployment cost*
- c) Cost Large Pipe Lagging Decon
= (Length Large Pipe Lagging × Cost Avg × 2) + *deployment cost*
- d) Cost Insulation Decon
= (Area Insulation × Cost Avg) + *deployment cost*

6.4 Post-Characterization

- a) Cost Small Pipe Lagging Post-Char.
= (Cost Avg × Length Small Pipe Lagging) + *deployment cost*
- b) Cost Large Pipe Lagging Post-Char.
= (Cost Avg × Length Large Pipe Lagging) + *deployment cost*
- c) Cost Insulation Post-Char.
= (Cost Avg × Area Insulation) + *deployment cost*

6.5 Cutting/Sizing/Demolition

- a) Asbestos lagging and insulation should have been removed in decontamination process.

6.6 Disposal

- a) Cost Small Pipe Lagging Primary Waste Transport
= Weight Small Pipe Lagging × **transport cost (inorganic) × distance (inorganic)**
- b) Cost Large Pipe Lagging Primary Waste Transport
= Weight Large Pipe Lagging × **transport cost (inorganic) × distance (inorganic)**
- c) Cost Insulation Primary Waste Transport
= Weight Insulation × **transport cost (inorganic) × distance (inorganic)**
- d) Cost Small Pipe Lagging Primary Waste Disposal
= Weight Small Pipe Lagging × **primary waste disposal cost (inorganic)**
- e) Cost Large Pipe Lagging Primary Waste Disposal
= Weight Large Pipe Lagging × **primary waste disposal cost (inorganic)**
- f) Cost Insulation Primary Waste Disposal
= Weight Insulation × **primary waste disposal cost (inorganic)**

7.0 TRANSITE

7.1 Basic Information

- a) Weight Transite
= Area Transite × weight/area T

7.2 Pre-Characterization

- a) Cost Transite Pre-Char.
= (Cost Avg × Area Transite) + *deployment cost*

7.3 Decontamination

- a) Cost Transite Decon
= (Area Transite × Cost Avg) + *deployment cost*

7.4 Post-Characterization

- a) Cost Transite Post-Char.
= (Cost Avg × Area Transite) + *deployment cost*

7.5 Cutting/Sizing/Demolition

- a) Transite should have been removed in decontamination process.

7.6 Disposal

- a) Cost Transite Primary Waste Transport
= Weight Transite × **transport cost (inorganic)** × **distance (inorganic)**
- b) Cost Transite Primary Waste Disposal
= Weight Transite × **primary waste disposal cost (inorganic)**

8.0 Surveillance & Maintenance

- a) for years < PBS start
S&M cost = Size × cost/yr-area SM × (PBS Start – year)
- b) for years > PBS End
S&M cost = 0
- c) for years > PBS Start and < PBS End
S&M cost = Sum [Size × cost/yr-area SM × ((PBS End – PBS Start + 1) – (year – PBS Start + 1))/(PBS End – PBS Start + 1)]

for year = PBS Start to PBS End

hrs, Ventilation & HEPA Filtration Systems	2000	hr
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APPENDIX B

D&D TECHNOLOGIES ASSESSMENT: TECHNOLOGY LIST

D&D TECHNOLOGIES ASSESSMENT: TECHNOLOGY LIST (Version 2.1)

Draft Final Technical Report

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D&D TECHNOLOGIES ASSESSMENT: TECHNOLOGY LIST (Version 2.1)

1.0 INTRODUCTION

This report describes and summarizes the results obtained by the Energy & Environmental Research Center (EERC) after collecting and examining the available data concerning technologies applicable to decontamination and decommissioning (D&D). A total of 533 technologies have been identified for use in D&D activities. Among these, 126 are termed alternative technologies, which have received U.S. Department of Energy (DOE) funding for research, development, or demonstration, and the remaining 407 are termed baseline. For each technology, a series of deployment codes were developed which identify the capabilities of the technology. Data for determination of fixed and variable costs were as well as associated secondary waste generation rates found in 44 Innovative Technology Summary Reports (ITSRs). Of these, only 22 covered technologies suitable for use in the current version of the model. Section 2 of this report reviews the sources of data used for information concerning the technologies. Section 3 describes the deployment codes used both for technologies and remediation needs. Section 4 presents a summary of the results obtained to date, and Section 5 discusses future activities.

To make the Technology List upgradable and easily accessible for searching and inclusion in other data management systems, it has been placed into an Excel spreadsheet format. A copy of the spreadsheet is attached in the disk holder at the back of this document, and hard copies of each of the sheets are in the appendices.

2.0 DATA SOURCES

The following sources were used to collect information about the technologies in Version 2.1 of the Technology List created by the EERC.

2.1 TMS Technologies

The Technology Management System (TMS) was created for EM-50 to aid in the tracking of alternative technologies and to make the information more accessible to the sites for identifying cleanup technologies. The TMS database is available on the World Wide Web.

The TMS database provides a structured mechanism for assessing the status of a particular technology development effort, but lacks information about the performance of that technology. Where fully populated, the TMS system provides good descriptions of the technologies, but, commonly, backup information sources were used to gather the specifics.

For this activity, TMS datasheets were initially retrieved from the Office of Science and Technology (OST) TMS web site on February 2, 1998, and updated datasheets were retrieved on

February 12, February 26, March 2, and March 3, 1998. Only those technologies listed as D&D or related technologies are included in Version 2.1 of the D&D Technology List.

2.2 PAM Technologies

The EM-40 Preferred Alternatives Matrices (PAM) Rev. 2 (June 30, 1997) was retrieved from the World Wide Web. PAM is an effort by DOE's Office of Environmental Restoration (EM-40) to determine the commercial state of practice and provide a tool for field elements when selecting a technology remedy. The PAM study also performed an analysis similar to the deployment codes in this study. In most cases, the information on the technologies is minimal in this report; however, their preferred decontamination technology (PDT) analysis was used to gather additional information about the technologies.

2.3 Phoenix Technologies

The DOE Federal Energy Technology Center (FETC) Phoenix D&D Technology Module Version 1.0 database, which was furnished on CD-ROM, is a searchable compendium of nuclear D&D-related data. The module currently contains six categories of D&D technologies, namely cutting tools, decontamination processes, dismantling techniques, safety equipment, robotics, and waste-handling methods. Module 1 is severely lacking in supporting information for the technologies, and much of the analysis for this study relied on sound engineering judgment without backup information about the technologies.

The Phoenix technologies are the largest group, since different sizes or models of the same technology are listed as separate technologies. This decision was based on the fact that in the future each size or model of a technology may have its distinct deployment code.

Technology Module Version 2.0 was briefly reviewed. Although the number of technologies had grown considerably, the types of technologies did not fit the current version of the D&D model.

2.4 Nonselected LSDP Technologies

Copies and summary tables of the technology evaluation forms were reviewed for each of the large-scale demonstration projects (LSDPs). In addition, Links to DOE Site Decommissioning Projects (particularly LSDPs) were followed and examined for any further information they may contain. Technologies were included in the Technology List based on these sheets; however, because supporting information was lacking, the technologies were only included for the exact purpose they were reviewed within the LSDPs. No judgment was made as to additional uses for these technologies beyond the strict confines of the original LSDP intentions.

2.5 Additional Technology Data Sources

In addition, the following information sources were examined in relation to the information required by the Needs Analysis. While numerous technologies were represented, these sources did not appear to contain any information that was not already available. In addition, the information in many of the sources was 1 to 1½ years old. None of these data have been used for Version 2.1 of the Technology List.

2.5.1 TechKnow Database

TechKnow is an on-line database which allows Internet users to share and receive technical solutions to environmental problems. Technologies are categorized by contaminant, media, and name. Profiles of technologies include summaries, development and intellectual property status, and cost. Licensing availability and contact information are also included.

2.5.2 Remediation Technologies Screening Matrix and Reference Guide (Version 3.0)

To assist the remedial project manager (RPM) in the remediation evaluation process and to enhance technology transfer among federal agencies, the Federal Remediation Technologies Roundtable developed this web site to combine the unique features of several agency publications into a single information source.

2.5.3 TDI Selected Proposals

The Technology Deployment Initiative (TDI) mission is to deploy technologies and processes that reduce the DOE Environmental Management (EM) costs, accelerate site cleanup, and support Ten-Year Plan goals and schedules. The selected proposals contain technology descriptions, but no data.

2.5.4 GWRTAC Technical Documents

Available on-line, GWRTAC includes technology status, evaluation, overview, and information reports. All data are from 1996 to present. These are primarily groundwater remediation technologies.

2.5.5 EPA ORD/ATTIC

The U.S. Environmental Protection Agency (EPA) Office of Research & Development Alternative Treatment Technology Information Center (ORD/ATTIC) is a comprehensive computer database system providing up-to-date information on innovative treatment technologies. ATTIC Version 2.1 provides access to several independent databases, as well as a mechanism for retrieving full-text documents of key literature. This database is primarily concerned with hazardous waste cleanup.

2.5.6 *Envirotrade Technology Summaries*

Maintained by the National Technology Transfer Center, this is a database that maintains descriptions and graphics on worldwide waste sites and technologies. The database contains information from federal and university laboratories.

2.5.7 *Remediation Technologies Screening Matrix and Reference Guide*

Developed by the Federal Remediation Technologies Roundtable and containing information from seven government agencies, this guide is intended to allow the reader to gather essential descriptive information on the respective treatment technologies. It incorporates cost and performance data to the maximum extent available. These technologies are applicable for common pollutants, but the section on radionuclides contained no data.

2.5.8 *ENVIRO-ACCESS Environmental Technologies Fact Sheets*

These fact sheets display various commercial environmental technologies available through Quebec Enterprises. These technologies were developed in Canada and are primarily concerned with the remediation of commercial sites, with no particular application to D&D.

2.6 Innovative Technology Summary Reports

Reports on LSDPs called ITSRs were retrieved from two FTP sites and through the DOE FETC home page. In the LSDPs, innovative (alternative) and baseline technologies were tested in performance of actual D&D activities. The ITSRs were created as summaries of these comparisons. Concise technology descriptions and discussions of both objective and subjective observations were given. All of the reports covered observed costs, performance, secondary waste generation, ALARA and safety, and ease of use and implementation. For current purposes, the cost information and secondary waste generation data presented were of greatest interest.

3.0 DEPLOYMENT CODES

3.1 Development of Deployment Codes

Deployment codes (also called PDT or environmental condition criteria [ECC] codes) are a systematic assignment of code numbers that correspond to a particular application of a technology within the D&D area. The assignment of a deployment code serves to differentiate one type of application from another. The codes are assigned beginning with the most general and becoming more and more specific as further levels are assigned. It should be noted that a deployment code can be used both to describe a cleanup need that exists and a technology that is potentially available for use in that situation. For this assessment, the deployment codes were developed for five levels of differentiation. As a result, the deployment code for a particular situation consists of a series of five 2-digit numbers.

3.2 Listing of Deployment Codes

Table 1 shows the deployment codes by level, category, and code number.

TABLE 1

Deployment Code Listing		
Level	Categories	Code
	Blank (Insufficient information/no applicable subcategories)	99
00	Decommissioning categories	
	Other	00
	Facility construction	01
	Decommissioning residue	02
01	Material types	
	Other	00
	Concrete/masonry/brick	01
	Metal	02
	Wood	03
	Asbestos/transite	04
	Solids/debris	05
	Sludge	06
	Liquid	07
02	Process types	
	Characterization	01
	Decontamination	02
	Cutting & sizing	03
	Demolition	04
	Material disposition	05
	Worker safety & health	06
	Remote tooling/automation	07
	Treatment	08
03	Process subtypes	
	Characterization	
	Large/complex areas	01
	Internal characterization (pipes, ducts, process equipment)	02
	Inaccessible areas (confined space, behind walls, containers)	03
	Structural integrity inspection	04
	Buried objects	05
	Equipment components, walls, ceilings, irregular floors	06
	Concrete decontamination subtypes	
	Floors	07
	Walls & ceilings	08
	Metal decontamination subtypes	
	Lead bricks	09
	Equipment/glove boxes/dismantled piping	10
	Sheet metal/structural Steel/steel liners	11
	System piping/tank internals	12
	Concrete cutting & sizing subtypes	

TABLE 1 (continued)

Level	Categories	Code
	Heavily reinforced	13
	Unreinforced	14
	Walls & floors	15
	Metal cutting & sizing subtypes	
	Instrument tubing	16
	Large-diameter piping	17
	Small-diameter piping	18
	Flat stock & pressure vessels	19
	Structural steel	20
	Lead bricks	21
	Demolition subtypes	
	Reinforced	22
	Lightly reinforced	23
	Nonreinforced	24
	Stack	25
	Structure	26
	Sheathing intact	27
	Sheathing removed	28
	Disposition subtypes	
	Handling	29
	Sorting	30
	Packaging	31
	Recycle	32
	Waste minimization/disposal	33
	Worker safety & health subtypes	
	Hazards monitoring/control (including air monitoring)	34
	Personnel-monitoring equipment	35
	Personnel protective equipment	36
	Treatment subtypes	
	Organic contaminants	37
	Inorganic contaminants	38
	Radioactive contaminants	39
	Mixed low-level waste (LLW)/organic	40
	Mixed LLW/inorganic	41
	Asbestos/transite	42
	Lead	43
04	Condition categories	
	Concrete decontamination categories	
	Large areas	01
	Small areas	02
	Metal decontamination categories (equipment/glove boxes/ dismantled piping)	

TABLE 1 (continued)

Level	Categories	Code
	Large components	03
	Small components	04
	<i>Metal decontamination categories (sheet metal/structural steel, stainless steel liners)</i>	
	Floors	05
	Walls & ceilings	06
	<i>Metal decontamination categories (system piping/tank internals)</i>	
	Stainless & high-alloy steels (reactor systems)	07
	Carbon/low-alloy steels	08
	<i>Metal-cutting categories</i>	
	Thermal	09
	Nonthermal	10
	<i>Characterization</i>	
	Loose contamination	11
	Fixed contamination	12
	Volumetric contamination	13
05	Condition subcategories	
	<i>Decontamination subcategories</i>	
	Painted surfaces	01
	Depth <1/32"	02
	Depth 1/32" to 1/8"	03
	Depth 1/8" to 1/4"	04
	Depth ≥ 1/4"	05
	Cracks/crevices	06

4.0 RESULTS

4.1 Total Technologies

A total of 533 technologies are available for consideration in future D&D planning. Of these, 92 are TMS technologies, 109 are PAM technologies, 244 are Phoenix database technologies, 60 are technologies that were considered but not selected for the LSDPs, 13 are technologies from ODS Table 0.9.1, and 15 are baseline technologies from the ITSRS.

The large number of technologies and the relatively incomplete associated information made it difficult to eliminate all duplicates in the technology spreadsheet. Duplicates primarily exist for the baseline technologies. This difficulty is compounded by inconsistencies in naming technologies in the various data sources, e.g., TMS compared to LSDP.

4.2 Alternative Technologies

The 92 TMS technologies were classified as alternative technologies. In addition, 21 technologies in the Phoenix database that were not considered to be commercially available and the 13 technologies from ODS Table 0.9.1 were also included in this category.

4.3 Baseline Technologies

All 109 PAM technologies were considered to be commercially available and were listed as baseline technologies. In addition, 223 technologies from the Phoenix database were also identified as commercially available and were likewise considered to be baseline technologies. Also, all of the technologies reviewed but not selected for the LSDPs were included.

4.4 Cost Information

The cost information presented in the ISTRs for the alternative and baseline technologies tended to be thorough but was not always complete or accurate. It was to be presented in a format defined by a work breakdown structure which was not rigorously followed in all cases. A common fault was to apparently neglect the cost of disposal of materials. Further, if a given baseline technology was used in several ISTRs, the costs were not always consistently presented. Also, within the same ISTR, a piece of equipment having the same ownership status can be presented as needing transport to the site in one instance and not in another.

Lacking all of the information available to the authors of the ISTRs, the apparent errors were dealt with using reasonable engineering judgment. An effort was made to include costs consistently. No significant attempt was made to create or include information that the ISTR authors omitted. Adjustments were made, for example, when loading, unloading, and on-site transport of the demonstrated technology was obviously warranted but not included by the ISTR authors.

Cost information presented in the reports was condensed to a format consistent with the model developed at the EERC. The cost information used by the model was essentially broken down to fixed and variable costs and is presented in Appendix E. Fixed costs were considered to be those associated with equipment (technology) transport, decontamination, setup and dismantlement, etc., at the building/site. The variable costs were those which depended on the duration and quantity of work done at the building/site. Costs such as the purchase of major equipment or, in some cases, transport to the area where there are presumed to be more than one building/site to be dealt with have not yet been made consistent with the model or the model altered to use those data.

The model currently deals with secondary waste generation rates on a kilogram per hour basis. When given, the secondary waste generation rates in the ISTRs were reported on a volume basis. Where those wastes comprised PPE and other such materials, a density of 64 kilograms per cubic meter was assumed. Secondary waste generation used in the model is also presented in Appendix A5. In some cases, the secondary waste information was reported as a cost of disposal. That information was included directly in the variable cost entered for the technology.

5.0 FUTURE ACTIVITIES

Two areas where further work will prove fruitful in the future are additions to the data that are available for each technology and refinement of the deployment codes.

5.1 Additions to Technology Data

The following are areas where further definition and supplemental data are needed for many of the technologies in order to make sound decisions concerning their applicability.

5.1.1 *Technology Descriptions*

This information is required principally for assessing the application of the technology within D&D and to facilitate development of the deployment code.

5.1.2 *Operating Rates and Capabilities*

Operating rate and capabilities data are required for calculation of operating cost and calculation of waste (primary and secondary) volumes.

5.1.3 *Cost Data*

Cost data (e.g., operating, maintenance, capital waste disposal, waste transport, etc.) are required for calculation of Process economics.

5.1.4 *Safety Data*

This information is necessary to allow comparison of technology choices based on a qualitative rather than just quantitative (cost) basis.

5.1.5 *Operability and Maintainability Data*

This information is necessary to allow comparison of technology choices based on a qualitative rather than just quantitative (cost) basis.

5.1.6 *Present Data Sources*

TMS technology information has principally been found on the OST Information Inventory. Several D&D TMS technology overviews are deficient in either a technical or a general description. Further, this database was not developed to provide safety, operability, and maintainability data. The Information Inventory needs to be updated or the principal investigators or vendors for the TMS technologies should be queried directly.

The PAM database provided limited information on operating rates and capabilities and cost data. No information is available for safety, operability, and maintainability data. PAM does provide reference sources for each technology.

The Phoenix Decision Support Tool Module 1.0 was totally deficient in technology descriptions. Sporadic information was provided for operating rates and cost data. The developer of the Phoenix database may have to be queried for this information or the vendors may have to be queried directly.

The nonselected LSDP technology information was found on the LSDP evaluation forms. These forms provided abbreviated technology descriptions only. Data for operating rates and capabilities, cost, safety, operability, and maintainability were not available and will have to be obtained directly from vendors.

5.2 Refinement of Deployment Codes

Further work is needed in this area, particularly in obtaining an exact match between the hierarchy of technology codes and the hierarchy of need codes. Presently, it is uncertain whether the hierarchy used for development of need deployment codes is identical to the hierarchy that was used for the development of technology deployment codes. Without identical hierarchy, it is possible that a need could appear not to have a potential solution when relying on deployment codes for need and technology matches. Similarly, without any needs to match a technology, it would appear that a technology was developed for an unspecified application.

The current information concerning available D&D technologies is presented in spreadsheet form. The spreadsheet has six pages, which contain the following information:

- A.1 Read Me First: This contains introductory material and further description of other pages.
- A.2 Selected Technologies: This is a list of selected technologies and their characteristics.
- A.3 ECC Codes: This is another list of selected technologies with their accompanying deployment (PDT) codes.
- A.4 Assumptions: This lists the assumptions for each group of technologies (TMS, PAM, etc.) and a description of the deployment codes.

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APPENDIX A

A1. READ ME FIRST

Version 2.1

The following series of spreadsheets outline the current list of technologies considered to be in the D&D focus area portfolio. This list was developed for the D&D Needs Analysis. The following describes the various sheets within this file.

Selected Technologies

Contains the technologies included in version 2.1 of this list as finalized on 3/23/98. The data sources included and the assumptions made in generating this list can be found later in the spreadsheet. This sheet contains the technology name and identifiers as well as the information related to the commercial availability of the technology and the vendor contacts.

Deployment Codes

For every technology at least one set of Preferred Deployment Technology (PDT) codes exists. These codes describe where the technology can be applied within the D&D Focus Area. For many technologies, multiple PDT's exist.

Assumptions

Contains the description for the system used to assign PDT's as well as a list of assumptions for each of the data sources examined to date. Knowledge of these assumptions are essential for proper interpretation of the information within this file.

LSDP's not in TMS

Contains LSDP technologies that could not be found within the TMS system. These technologies are to be researched further.

Non-Selected Technologies

Contains technologies that were originally added to the list but have since been removed. This is strictly for tracking purposes. These technologies were removed due to discontinued funding or very poor performance/applicability to D&D. This list contains technologies that require further information gathering including whether they were evaluated during LSDP's but rejected or potentially duplicated technologies with subtle title changes.

Data Sources

Contains a list of all of the data sources used in the development of this list to date. Contains data sources that were used as well as those that were not used for various reasons.

Replicated Deployment Codes

Deployment codes were assigned to D&D technologies. Particularly in the case of PAM treatment technologies, codes chosen to characterize technologies exceeded the actual limits of the codes. When extraneous codes were converted to '99', many effectively became duplicates. These duplicates were moved to this sheet.

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APPENDIX B

A2. SELECTED TECHNOLOGIES

Tech ID #	Technology Title	Data Source	Data Source Identifier	Data Source Date	1st Data Reference	2nd Data Reference	Available? Y/N	Current Stage	Next Stage Date	Last Stage Date	Availability POC	Baseline/ Alternative	Basic Data Entered by	Date of Basic Data Entry	LSDP Y/N
1	Portable Sensor for Hazardous Waste	TMS	31	2/12/98	Industry Partners 1997		N	5	10/3/98	10/3/99	Lawrence Piper (508) 889-0003	Alternative	TAE	2/12/98	
2	Laser Surface Cleaning	TMS	32	2/12/98			N	4	3/3/98	9/30/98	Eric Crevella (505) 271-0260	Alternative	TAE	2/12/98	
3	Interactive, Computer-Enhanced, Remote View	TMS	33	2/12/98	Industry Partners 1997		Y	6	na	na	William Sumgray (518) 785-2831	Alternative	TAE	2/12/98	
4	Pipe Explorer (TM) System	TMS	74	2/12/98	Industry Partners 1997		Y	7	na	na	David Cremer (505) 884-2300	Alternative	TAE	2/12/98	Y
5	Advanced Worker Protection System	TMS	75	2/12/98	Industry Partners 1997		Y	6	3/3/98	3/3/98	Bruce Caldwell (281) 448-3440	Alternative	TAE	2/12/98	
6	Stainless Steel Beneficial Reuse	TMS	80	2/12/98			Y	7	na	na	Bill Bostinger (803) 725-4833	Alternative	TAE	2/12/98	
7	CORPEX Nuclear Decontamination Process	TMS	87	2/12/98			Y	6	na	na	Susan Hannah (423) 691-4877	Alternative	TAE	2/12/98	
8	Remote-Operated Vehicle, Dry Ice Pellet Deco	TMS	91	2/12/98	Industry Partners 1997		N	4	3/15/98	3/15/99	Andrew Resnick (301) 249-3300	Alternative	TAE	2/12/98	
9	Coherent Laser Vision System	TMS	94	2/12/98	Industry Partners 1997		N	4	3/3/98	11/30/98	Dr. Philip Galtman (703) 719-9200	Alternative	TAE	2/12/98	
10	Protective Clothing Based on Parametric M	TMS	95	2/12/98	Industry Partners 1997		N	4	1/24/99	9/30/99	Douglas Gottschick (415) 328-2228	Alternative	TAE	2/12/98	
11	Three Dimensional, Integrated Characterizatio	TMS	97	2/12/98	Industry Partners 1997		N	5	3/3/98	11/30/98	Philip Galtman (703) 719-9200	Alternative	TAE	2/12/98	
12	Houdini Reconfigurable In Tank Mobile Robot	TMS	98	2/12/98	Industry Partners 1997		Y	7	na	na	Leona Bares (412) 765-3064	Alternative	TAE	2/12/98	
13	Portable X-Ray, K-Edge Heavy Metal Detector	TMS	134	2/12/98			N	5	9/1/98	na	Joe Gray (515) 294-9745	Alternative	MAM	2/12/98	
14	Asbestos Pipe-Insulation Removal System	TMS	146	2/12/98	Industry Partners 1997		N	5	5/30/98	9/30/98	Hagen Schempf (412) 268-8884	Alternative	TAE	2/12/98	
15	Thermal Conversion of Asbestos	TMS	224	2/12/98			Y	6	na	5/31/97	Robert Ledford (205) 575-9700	Alternative	TAE	2/12/98	
16	Diagnostics and Data Fusion of Robotic Senso	TMS	227	2/12/98	Industry Partners 1997		N	4	7/15/98	9/30/99	Ron Stauby (304) 285-4991	Alternative	TAE	2/12/98	
17	Decontamination and Conversion of Nickel Red	TMS	234	2/12/98	Industry Partners 1997		N	4	7/30/98	7/30/99	Valerie McNair (423) 481-0455	Alternative	TAE	2/12/98	
18	Operator Interface for Robotic Applications	TMS	281	2/12/98	Industry Partners 1997		N	4	3/31/98	9/30/98	Vijendra Kothari (304) 285-4579	Alternative	TAE	2/12/98	
19	Soda Blasting Decontamination Process	TMS	369	2/12/98			Y	6	na	6/31/97	Eric Neubauser (315) 437-5400	Alternative	TAE	2/12/98	
20	Field Raman Spectrograph	TMS	873	2/12/98	Industry Partners 1997		Y	8	na	na	John Haas (817) 759-9450	Alternative	TAE	2/12/98	Y
21	Removal of Contaminants from Equipment and	TMS	1450	2/12/98			N	5	4/3/98	3/31/00	na	Alternative	TAE	2/12/98	
22	Wall Walker	TMS, ITR-1478	1478	2/12/98			Y	7	3/27/98	3/27/98	Kim Abbott (510) 637-1501	Alternative	TAE	2/12/98	Y
23	Laser Cutting and Size Reduction	TMS	1477	2/12/98			Y	6	3/30/98	3/30/98	Tom Kugler (800) 262-0160	Alternative	TAE	2/12/98	
24	Specialized Separation Utilizing 3M Membrane	TMS	1543	2/12/98	Industry Partners 1997		N	4	3/31/98	3/31/00	na	Alternative	TAE	2/12/98	Y
26	SEG Recycle and Reuse of Radioactively Cont	TMS	1595	2/12/98			Y	7	na	na	Chris Reno (423) 481-0222	Alternative	TAE	2/12/98	
27	Spray Vacuum Cleaning	TMS, ITR-1780	1780	2/12/98			Y	6	2/18/98	2/18/98	Jim Grantham (910) 392-8100	Alternative	TAE	2/12/98	Y
28	VecLoader HEPA VAC	TMS	1784	2/12/98			Y	6	2/27/98	2/27/98	Brent Alexander (219) 486-8887	Alternative	TAE	2/12/98	Y
29	Dual Arm Work Platform	TMS	1787	2/12/98			Y	7	na	na	Dennis Haley (423) 576-4388	Alternative	TAE	2/12/98	Y
30	Portable X-Ray Fluorescence Detector	TMS	1790	2/12/98			Y	7	na	na	Tony Harding (970) 493-2219	Alternative	TAE	2/12/98	Y
31	Gamma Ray Imaging (C-Reactor LSDP)	TMS, ITR-1793	1793	2/12/98			Y	6	2/27/98	2/27/98	Frank Lopez (505) 682-4192	Alternative	TAE	2/12/98	Y
32	Mobile Integrated Temporary Utility System	TMS, ITR-1795	1795	2/12/98			Y	7	na	na	Steve Cabibbo (610) 832-9116	Alternative	TAE	2/12/98	Y
33	Starbolt (TM) Flashlamp	TMS	1798	2/12/98			Y	6	na	na	David Yannick (423) 482-1434	Alternative	TAE	2/12/98	Y
34	Mobile Automated Characterization System/CP	TMS, ITR-1798	1798	2/12/98			N	7	na	na	Dennis Haley (423) 576-4388	Alternative	TAE	2/12/98	Y
35	Mobile Work System (ROSIE)	TMS	1799	2/12/98			Y	7	na	na	Leona Bares (412) 765-3064	Alternative	TAE	2/12/98	Y
36	High Speed Cham Shell Cutter	TMS ITR-1807	1807	2/12/98			N	6	6/1/98	6/1/98	Marve Hyman (508) 373-2158	Alternative	TAE	2/12/98	
37	Pipe Crawler (CP-5 Fernald LSDPs)	TMS	1810	2/12/98			Y	7	na	na	James McClellan (950) 443-4944	Alternative	TAE	2/12/98	Y
38	Piping Inspection (Fernald LSDP)	TMS	1811	2/12/98			Y	6	4/24/98	4/24/98	Jim Adams (973) 448-0077	Alternative	TAE	2/12/98	Y
39	Rotary Peening with Captive Shot	TMS, ITR-1812	1812	2/12/98			Y	7	na	na	Peter Fritz (612) 736-3655	Alternative	TAE	2/12/98	Y
40	Swing-Reduced Crane Control	TMS	1815	2/12/98			Y	7	na	na	Michael Jones (205) 290-9000	Alternative	TAE	2/12/98	Y
41	Void Filling Using an Expanded Polyurethane F	TMS	1816	2/12/98			Y	6	2/20/98	2/20/98	Aaron Long (614) 498-8424	Alternative	TAE	2/12/98	Y
42	Gamma Cam (TM) Radiation Imaging System	TMS, ITR-1840	1840	2/12/98			Y	7	na	na	Bill Patlie 1-800-944-1180	Alternative	TAE	2/12/98	Y
43	Void Filling Using Low-Density Cellular Concret	TMS	1846	2/12/98			Y	6	3/1/98	3/1/98	Pat Stephens (360) 733-5270	Alternative	TAE	2/12/98	Y
44	Oxy-Gasoline Torch (Fernald LSDP)	TMS	1847	2/12/98			Y	6	4/15/98	4/15/98	Mat Heft (510) 237-7274	Alternative	TAE	2/12/98	Y
45	Centrifugal Shot Blasting	TMS, ITR-1851	1851	2/12/98			Y	7	na	na	Mike Connacher (509) 226-0315	Alternative	TAE	2/12/98	Y
46	FRHAM-TEX Anti Contamination Suit	TMS	1854	2/12/98			Y	7	na	na	Jim Brown (803) 386-5131	Alternative	TAE	2/12/98	Y
47	Field Transportable Beta Counter Spectromete	TMS	1853	2/12/98			N	7	na	na	Thomas Isenhour (412) 941-0151	Alternative	TAE	2/12/98	Y
48	NuFab Anti Contamination Suit	TMS	1855	2/12/98			Y	7	na	na	Len Finley (800) 933-8501	Alternative	TAE	2/12/98	Y
49	Personal Ice Cooling (PIC) System	TMS	1898	2/12/98			Y	6	3/27/98	3/27/98	Keth Burns (3010) 428-9898	Alternative	TAE	2/12/98	Y
50	Soft Media Blast Cleaning	TMS	1899	2/12/98			Y	6	3/1/98	3/1/98	Jim Flaherty (412) 855-1200	Alternative	TAE	2/12/98	Y
52	Surface Contamination Monitor and Survey Inf	TMS, ITR-1942	1942	2/12/98			Y	7	na	na	Joseph Shonka (770) 509-7606	Alternative	TAE	2/12/98	Y
53	ROTO PEEN Scaler and VAC PAC System	TMS, ITR-1943	1943	2/12/98			Y	7	na	na	Brad Fuller (412) 262-0725	Alternative	TAE	2/12/98	Y
54	Pegasus Coating Removal (CP-5 LSDP)	TMS	1945	2/12/98			Y	6	na	na	Tom Bodkin (412) 295-0068	Alternative	TAE	2/12/98	Y
55	Laser Assisted Ranging and Data System (C-R	TMS, ITR-1946	1946	2/12/98			Y	7	na	na	John Moroney (509) 375-4875	Alternative	TAE	2/12/98	Y
56	System for Tracking Remediation, Exposure, A	TMS	1947	2/12/98			Y	6	3/6/98	3/6/98	Robbie Lenz (610) 874-9160	Alternative	TAE	2/12/98	Y
57	Self Contained Pipe Cutting Shear	TMS, ITR-1948	1948	2/12/98			Y	7	na	na	Chris Kughart (540) 891-8600	Alternative	TAE	2/12/98	Y
58	Concrete Shaving System (C-Reactor LSDP)	TMS, ITR-1950	1950	2/12/98			Y	6	4/3/98	4/3/98	Ian Bannister 011-44-1302-890888	Alternative	TAE	2/12/98	
59	Heat Stress Monitoring System (C-Reactor LS	TMS	1953	2/12/98			Y	6	3/20/98	3/20/98	Denny Ebnor (541) 593-8639	Alternative	TAE	2/12/98	Y
60	Sealed-Seam Sack Suit (C-Reactor LSDP)	TMS	1954	2/12/98			Y	6	3/13/98	3/13/98	Rick Rehn (509) 659-1811	Alternative	TAE	2/12/98	Y
61	Advanced Recyclable Media System (CP-5 LS	TMS, ITR-1971	1971	2/12/98			Y	7	na	na	Chip Gooloy (919) 941-0847	Alternative	TAE	2/12/98	Y
62	Laser Induced Fluorescence Imaging	TMS	1999	2/12/98			N	6	6/15/98	6/15/98	John D'Beneditto (805) 681-2240	Alternative	TAE	2/12/98	Y
63	In Situ object Counting System	TMS, ITR-2098	2098	2/13/98			Y	7	na	na	Dale Emore (317) 298-7053	Alternative	MAM	2/13/98	Y
64	Remote Scabbler	TMS, ITR-2099	2099	2/13/98			Y	7	na	na	Linda Lukart-Ewanak (412) 262-072	Alternative	MAM	2/13/98	Y
65	Remote Control Concrete Demolition System	TMS, ITR-2100	2100	2/13/98			Y	7	na	na	Toby Duane (888) 273-2511	Alternative	MAM	2/13/98	Y
66	RESRAD-Build	TMS	2103	2/12/98			N	6	9/12/98	9/12/98	na	Alternative	TAE	2/12/98	
67	Wireless Remote Monitoring System	TMS	2104	2/12/98			Y	6	3/15/98	3/15/98	Dana Emmons (610) 646-8830	Alternative	TAE	2/12/98	Y
68	Robot Task Space Handler	TMS	8999	2/12/98	Industry Partners 1997		N	na	na	na	William Hamel (423) 974-5275	Alternative	TAE	2/12/98	
69	Acid Etching	PAM	3 1 1	6/1/97	"Decommissioning Hand	"Methods of R	Y					Baseline	SJC	2/3/98	
70	Acid/Hydrogen Peroxide Dissolution	PAM	3 1 2	6/1/97	"Decommissioning Hand	"Decontamina	Y					Baseline	SJC	2/3/98	
71	Alkaline Permanganate/Ammonium Citrate/Eth	PAM	3 1 3	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
72	Alkaline Salts	PAM	3 1 4	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
73	CAN-DECON Process	PAM	3 1 5	6/1/97	"Decommissioning Hand	"Procedure for	Y					Baseline	SJC	2/3/98	
74	Caustic Treatment (Detergents)	PAM	3 1 6	6/1/97	"Decommissioning Hand	"Decommissio	Y					Baseline	SJC	2/3/98	
75	Chelation	PAM	3 1 7	6/1/97	"Decommissioning Hand	"Procedure for	Y					Baseline	SJC	2/3/98	
76	Chemical Extraction	PAM	3 1 8	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
77	Chemical Foam/Gel	PAM	3 1 9	6/1/97	"Decommissioning Hand	"Procedure for	Y					Baseline	SJC	2/3/98	
78	Electropolishing	PAM	3 1 11	6/1/97	"Decommissioning Hand	"Electrochemi	Y					Baseline	SJC	2/3/98	
79	Hydrazine Nitrate	PAM	3 1 12	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
80	Hydrochloric Acid	PAM	3 1 13	6/1/97	"Decommissioning Hand	"A Process for	Y					Baseline	SJC	2/3/98	
81	Industrial Floor Scrubbers	PAM	3 1 14	6/1/97	"Decommissioning Hand	"Decommissio	Y					Baseline	SJC	2/3/98	
82	In-Situ Electropolishing	PAM	3 1 15	6/1/97	"Decommissioning Hand	"Electrochemi	Y					Baseline	SJC	2/3/98	
83	Ketosene	PAM	3 1 16	6/1/97	"Decommissioning Hand		Y					Baseline	MAM	2/3/98	
84	Low Oxidation State Metal Ion (LOMI) Process	PAM	3 1 17	6/1/97	"Decommissioning Hand	"A Process for	Y					Baseline	SJC	2/3/98	
85	Manual Brushing/Wiping/Scrubbing	PAM	3 1 18	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
86	NaOH	PAM	3 1 19	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	

Tech	ID #	Technology Title	Data Source	Data Source Identifier	Data Source Date	1st Data Reference	2nd Data Reference	Available? Y/N	Current Stage	Next Stage Date	Last Stage Date	Availability POC	Baseline/ Alternative	Basic Data Entered by	Date of Basic Data Entry	LSDP Y/N
87		Nitric Acid	PAM	3 1 20	6/1/97	"Decommissioning Hand	"A Process for	Y					Baseline	SJC	2/3/98	
88		Organic Acids	PAM	3 1 21	6/1/97	"Decommissioning Hand	"Methods of R	Y					Baseline	SJC	2/3/98	
89		Oxalate Peroxide	PAM	3 1 22	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
90		Oxalic Acid/Citric Acid/CITROX Process	PAM	3 1 23	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
91		Paint Remover	PAM	3 1 24	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
92		Phosphoric Acid	PAM	3 1 25	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
93		Strong Mineral Acids	PAM	3 1 27	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
94		Sulfamic Acid	PAM	3 1 28	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
95		Formaldehyde/Stabilizer Coatings	PAM	3 2 1	6/1/97	"Decommissioning Hand	"Immobilizatio	Y					Baseline	SJC	2/3/98	
96		Strippable (and self strippable) Coatings	PAM	3 2 2	6/1/97	"Decommissioning Hand	"Gross Decont	Y					Baseline	SJC	2/3/98	
97		Laser Etching/Ablation	PAM	3 3 1	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
98		Automated Grinding	PAM	3 4 1	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
99		Drilling and Spalling	PAM	3 4 2	6/1/97	"Decommissioning Hand	"Slow Demolit	Y					Baseline	SJC	2/3/98	
100		Expansive Grout	PAM	3 4 3	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
101		Hand Grinding/Honing	PAM	3 4 5	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
102		Paving Breaker/Chipping Hammer	PAM, ITSR-2100	3 4 6	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
103		Piston Scabbler	PAM, ITSR-1950	3 4 7	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
104		Planing	PAM	3 4 8	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
105		Rotating Brushes/Honing	PAM	3 4 9	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
106		Shrouded, Needle Scalar	PAM	3 4 10	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
107		Turbulator	PAM	3 4 11	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
108		Ultrasonic Vibration	PAM	3 4 12	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
109		Vibratory Finishing	PAM	3 4 13	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
110		Smelt Purification	PAM	3 5 1	6/1/97	"Decommissioning Hand	"Final Report	Y					Baseline	SJC	2/3/98	
111		Centrifuge Cryogenic CO2 Pellet Blasting	PAM	3 6 1	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
112		Dry Vacuum Cleaning	PAM	3 6 3	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
113		Foam/Sponge Blasting	PAM	3 6 4	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
114		Grit Blasting	PAM	3 6 5	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
115		High Pressure Freon Cleaning	PAM	3 6 6	6/1/97	"Decommissioning Hand	"Test Results f	Y					Baseline	SJC	2/3/98	
116		Hydroblasting	PAM	3 6 7	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
117		Hydroblasting - flexible lance	PAM	3 6 8	6/1/97	"Decommissioning Hand	"Decommissio	Y					Baseline	SJC	2/3/98	
118		Ice Blasting	PAM	3 6 9	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
119		Shot Blast Scabbling	PAM	3 6 10	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
120		Soda Blasting	PAM	3 6 11	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
121		Steam Vacuum	PAM	3 6 12	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
122		Hot Water Flushing	PAM	3 7 1	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
123		Rotating Cavitation Water Jet	PAM	3 7 2	6/1/97	"Decommissioning Hand	"Decommissio	Y					Baseline	SJC	2/3/98	
124		Steam Cleaning	PAM	3 7 3	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
125		Superheated Water	PAM	3 7 4	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
126		Ultra-High Pressure (UHP) Water Jet	PAM	3 7 5	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
127		Abrasive Cutter	PAM	3 8 1	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
128		Circular Cutting Saw	PAM	3 8 2	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
129		Diamond Wire	PAM	3 13 2	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
130		Mechanical Saw	PAM	3 8 4	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
131		Mobile Shears	PAM	3 8 5	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
132		Nibbler/Shear	PAM	3 8 6	6/1/97	"Decommissioning Hand	"Decommissio	Y					Baseline	SJC	2/3/98	
133		Wall & Floor Saws	PAM	3 8 7	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
134		Backhoe Mounted Ram	PAM	3 9 1	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
135		Chipping Hammer	PAM	3 9 3	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
136		Controlled Blasting	PAM	3 9 4	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
137		Rock Splitter	PAM	3 9 7	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
138		Universal Processor	PAM	3 9 8	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
139		Wrecking Ball/Slab	PAM	3 9 9	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
140		Abrasive Water Jet Cutting Technology	PAM	3 10 1	6/1/97	"Decommissioning Hand	"Decommissio	Y					Baseline	SJC	2/3/98	
141		Arc Saw	PAM	3 10 2	6/1/97	"Decommissioning Hand	"Technical Ver	Y					Baseline	SJC	2/3/98	
142		Explosive Cutting	PAM	3 10 3	6/1/97	"Decommissioning Hand	"Explosive Dis	Y					Baseline	SJC	2/3/98	
143		Oxyacetylene Cutting	PAM, ITSR-1807	3 10 5	6/1/97	"Decommissioning Hand	"Decommissio	Y					Baseline	SJC	2/3/98	
144		Plasma Arc	PAM	3 10 6	6/1/97	"Decommissioning Hand	"Dismantling	Y					Baseline	SJC	2/3/98	
145		Thermite Lance	PAM	3 10 7	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
146		Backhoe Mounted Pulverizer	PAM	3 11 1	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
147		Bulldozer	PAM	3 11 4	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
148		Cable-Suspended Excavator Attachments	PAM	3 11 5	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
149		Jackhammer	PAM	3 12 1	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
150		Grapple	PAM	3 13 5	6/1/97	"Decommissioning Hand		Y					Baseline	SJC	2/3/98	
151		Inorganic based encapsulation	PAM	3 14 1	6/1/97	U S Department of Defe		Y					Baseline	SJC	2/3/98	
152		Macroencapsulation	PAM	3 14 2	6/1/97	http://www.dne.bnl.gov/~http://www.dn		Y					Baseline	SJC	2/3/98	
153		Organic based encapsulation	PAM	3 14 3	6/1/97	http://www.dne.bnl.gov/~http://www.dn		Y					Baseline	SJC	2/3/98	
154		Reform/Amalgamation	PAM	3 14 4	6/1/97	DOE Mixed Waste Focu		Y					Baseline	SJC	2/3/98	
155		Brickmaking	PAM	3 15 1	6/1/97	http://www-ermd.lanl.gov		Y					Baseline	SJC	2/3/98	
156		Calcination	PAM	3 15 2	6/1/97	Green, Don W., and Jam		Y					Baseline	SJC	2/3/98	
157		Open Burning/Open Detonation	PAM	3 15 3	6/1/97	U S Department of Defe		Y					Baseline	SJC	2/3/98	
158		Drying/Dewatering	PAM	3 15 4	6/1/97	United States Air Force		Y					Baseline	SJC	2/3/98	
159		High Temperature Thermal Desorption	PAM	3 15 5	6/1/97	U S Department of Defe		Y					Baseline	SJC	2/3/98	
160		Incineration	PAM	3 15 6	6/1/97	U S Department of Defe		Y					Baseline	SJC	2/3/98	
161		Low temperature thermal desorption	PAM	3 15 7	6/1/97	U S Department of Defe		Y					Baseline	SJC	2/3/98	
162		Pyrolysis	PAM	3 15 9	6/1/97	U S Department of Defe		Y					Baseline	SJC	2/3/98	
163		Steam reforming	PAM	3 15 10	6/1/97	U S Department of Defe		Y					Baseline	SJC	2/3/98	
164		Vitrification	PAM	3 15 11	6/1/97	Commercial Treatability Study	http://www.ern.de	Y					Baseline	SJC	2/3/98	
165		Advanced adsorbents	PAM	3 16 2	6/1/97	U S Department of Defe	U S Departm	Y					Baseline	SJC	2/3/98	
166		Chemical Oxidation/Reduction	PAM	3 16 8	6/1/97			Y					Baseline	SJC	2/3/98	
167		CO2 Blasting	PAM	3 16 9	6/1/97			Y					Baseline	SJC	2/3/98	
168		Dehalogenation	PAM	3 16 13	6/1/97	U S Department of Defe		Y					Baseline	SJC	2/3/98	
169		Electrochemical Decontamination	PAM	3 16 15	6/1/97	U S Department of Ener		Y					Baseline	SJC	2/3/98	
170		Ion Exchange	PAM	3 16 21	6/1/97	U S Department of Defe		Y					Baseline	SJC	2/3/98	

Tech ID #	Technology Title	Data Source	Data Source Identifier	Data Source Date	1st Data Reference	2nd Data Reference	Available? Y/N	Current Stage	Next Stage Date	Last Stage Date	Availability POC	Baseline/Alternative	Basic Data Entered by	Date of Basic Data Entry	LSDP Y/N
171	Mechanical separation	PAM	3 18 22	6/1/97	U S Department of Ener		Y					Baseline	SJC	2/3/98	
172	Reverse Osmosis	PAM	3 18 23	6/1/97	Environmental Protection		Y					Baseline	SJC	2/3/98	
173	Precipitation (w/ 3 18 25)	PAM	3 18 24	6/1/97	U S Department of Defe		Y					Baseline	SJC	2/3/98	
174	Filtration (w/ 3 18 24)	PAM	3 18 25	6/1/97	U S Department of Defe		Y					Baseline	SJC	2/3/98	
175	Solar Evaporation	PAM	3 18 27	6/1/97	Freeman, Harry (ed) 19		Y					Baseline	SJC	2/3/98	
176	Volume Reduction/Compaction	PAM	3 18 31	6/1/97	U S Department of Ener		Y					Baseline	SJC	2/3/98	
177	Landfills (RCRA, Radioactive, TSCA, Mixed W	PAM	3 17 3	6/1/97	O'Brien and Gere Engine Environmental		Y					Baseline	SJC	2/3/98	
178	3" Trash Pump- Wacker PT 3A	Phoenix		5/1/97			Y				Wacker Corporation (414) 252-7296	Baseline	SJC	2/11/98	
179	40K Floor Machine	Phoenix		5/1/97			Y				Valley Systems (330) 854-4526	Baseline	SJC	2/11/98	
180	Abrasive Blaster- MP 1	Phoenix		5/1/97			Y				Abrasive Blasting Systems, Inc (913	Baseline	SJC	2/11/98	
181	Abrasive Blaster- MP 3	Phoenix		5/1/97			Y				Abrasive Blasting Systems, Inc (913	Baseline	SJC	2/11/98	
182	Abrasive Blaster- MPC	Phoenix		5/1/97			Y				Abrasive Blasting Systems, Inc. (913	Baseline	SJC	2/11/98	
183	Abrasive Blaster- MPC (1-3)	Phoenix		5/1/97			Y				Abrasive Blasting Systems, Inc (913	Baseline	SJC	2/11/98	
184	Aerosol Generator	Phoenix		5/1/97			Y				Jeffrey Kley (410) 363-9696	Baseline	SJC	2/11/98	
185	Air Blast Cleaning System	Phoenix		5/1/97			Y				Blast Cleaning Products Limited (905	Baseline	SJC	2/11/98	
186	Air Pak AP-2000	Phoenix		5/1/97			Y				Bartlett Nuclear, Inc. (800) 225-0385	Baseline	SJC	2/11/98	
187	Air Pak AP-2000-CH	Phoenix		5/1/97			Y				Bartlett Nuclear, Inc. (800) 225-0385	Baseline	SJC	2/11/98	
188	Air Pak AP-4000	Phoenix		5/1/97			Y				Bartlett Nuclear, Inc. (800) 225-0385	Baseline	SJC	2/11/98	
189	Air Pak AP-4000-CH	Phoenix		5/1/97			Y				Bartlett Nuclear, Inc. (800) 225-0385	Baseline	SJC	2/11/98	
190	Air Sampler- BS	Phoenix		5/1/97			Y				Staplex Co (800) 221-0822	Baseline	SJC	2/11/98	
191	Air Sampler- LV-1	Phoenix		5/1/97			Y				Staplex Co (800) 221-0822	Baseline	SJC	2/11/98	
192	Air Sampler- LV-2	Phoenix		5/1/97			Y				Staplex Co (800) 221-0822	Baseline	SJC	2/11/98	
193	Air Sampler- RAS-1	Phoenix		5/1/97			Y				Eberline (505) 473-3232	Baseline	SJC	2/11/98	
194	Air Sampler-TFIA-2	Phoenix		5/1/97			Y				Staplex Co (800) 221-0822	Baseline	SJC	2/11/98	
195	Air Sampler-TFIA-3	Phoenix		5/1/97			Y				Staplex Co (800) 221-0822	Baseline	SJC	2/11/98	
196	Air Sampler-TFIA-4	Phoenix		5/1/97			Y				Staplex Co (800) 221-0822	Baseline	SJC	2/11/98	
197	All Weather Shelters (12x20x8)	Phoenix		5/1/97			Y				Cover It Inc 1-800-932-9344	Baseline	SJC	2/11/98	
198	All Weather Shelters (24x20x8)	Phoenix		5/1/97			Y				Cover It Inc 1-800-932-9344	Baseline	SJC	2/11/98	
199	Alpha Air Monitor- Alpha-6	Phoenix		5/1/97			Y				Eberline (505) 473-3232	Baseline	SJC	2/11/98	
200	Alpha Scintillation Probe- AC-3	Phoenix		5/1/97			Y				Eberline (505) 473-3232	Baseline	SJC	2/11/98	
201	Alternating Saw	Phoenix		5/1/97			N				FEIN, France	Alternative	SJC	2/10/98	
202	AMS Carbon Sol Auger- Sampling Equipment	Phoenix		5/1/97			Y				Hazco Services Inc., 1-800-332-043	Baseline	MAM	2/10/98	
203	Analog Smart Portable- ASP-1	Phoenix		5/1/97			Y				Eberline (505) 473-3232	Baseline	MAM	2/10/98	
204	Asbestos Pipe-Insulation System	Phoenix		5/1/97			N				Hagen Schenck (412) 268-8884	Alternative	SJC	2/11/98	
205	Asphalt, Concrete & Metal Air Hammer Bits	Phoenix		5/1/97			Y				Vulcan (800) 247-4770	Baseline	SJC	2/11/98	
206	Bandsaw- AC-7	Phoenix, ITSR-1948		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
207	Bandsaw- B-25-1	Phoenix, ITSR-1948		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
208	Bandsaw- B-25-2	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
209	Bandsaw- B-25-2C	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
210	Bandsaw- B-25-3	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
211	Bandsaw- B-25-3C	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
212	Bandsaw- B-25-4	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
213	Bandsaw- F-16-1	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
214	Bandsaw- F-16-2	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
215	Bandsaw- F-16-2A	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
216	Bandsaw- F-16-2U	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
217	Bandsaw- L -10	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
218	Bandsaw- P-50-3	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
219	Bandsaw- R-2024-3	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
220	Bandsaw- VCO-2530	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
221	Bandsaw- VCO-2535	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
222	Bandsaw- W-10-1	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
223	Bandsaw- W-10-2	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
224	Bandsaw- W-10-2A Automatic	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
225	Bandsaw- W-9-1	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
226	Bandsaw- W-9-1A1	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
227	Bandsaw- W-9-1A3	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
228	Bandsaw- X 6031-2	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
229	Bandsaw- S-40-3	Phoenix		5/1/97			Y				W F Wells (616) 279-5123	Baseline	SJC	2/10/98	
230	Battrel Monitor- BRC Waste Analyzer	Phoenix		5/1/97			Y				Helgeson Scientific Services, (800) 7	Baseline	MAM	2/10/98	
231	Bela Air Monitor- AMS-4	Phoenix		5/1/97			Y				Eberline (505) 473-3232	Baseline	MAM	2/10/98	
232	Bicron Micro Rem- Micro Rem	Phoenix		5/1/97			Y				Bicron (218) 564-2251	Baseline	MAM	2/10/98	
233	Cadet Venaxial- Ventilation Unit	Phoenix		5/1/97			Y				Tuthill Corp.-Coppus PVD, (508) 758	Baseline	MAM	2/10/98	
234	Canberra Counting System- 2400	Phoenix		5/1/97			Y				Canberra Industries, Inc - Nuclear P	Baseline	MAM	2/10/98	
235	Centrifugal Wheel Blast Cleaning System	Phoenix		5/1/97			Y				Robin Houston (905) 827-0643	Baseline	SJC	2/11/98	
236	Chemical Decontamination	Phoenix		5/1/97			Y				EET, Inc (713) 662-0727	Baseline	SJC	2/11/98	
237	Chemical Decontamination using Chelating Sol	Phoenix		5/1/97			N				Babcock & Wilcox Company	Alternative	SJC	2/11/98	
238	CO2 Blasting Equipment- RDS-1000A	Phoenix		5/1/97			Y				David Linger (513) 831-3211	Baseline	SJC	2/11/98	
239	CO2 Blasting Equipment- RDS-250 FP	Phoenix		5/1/97			Y				David Linger (513) 831-3211	Baseline	SJC	2/11/98	
240	CO2 Cleaning- Gen III	Phoenix		5/1/97			Y				Tomco Equipment Co (770) 979-80	Baseline	SJC	2/11/98	
241	Compactor- C6R 6-90-200	Phoenix		5/1/97			Y				CGR Compacting, Inc., (413) 684-10	Baseline	MAM	2/10/98	
242	Concrete Cutter	Phoenix		5/1/97			Y				Robert Carson (513) 677-0800	Baseline	SJC	2/10/98	
243	Concrete Saw- MCC408	Phoenix		5/1/97			Y				Ace Equipment, Inc (800) 448-4223	Baseline	SJC	2/10/98	
244	Concrete Saw- Minicon 2	Phoenix		5/1/97			Y				Ace Equipment, Inc (800) 448-4223	Baseline	SJC	2/10/98	
245	Concrete Scabbler	Phoenix, ITSR-1851		5/1/97			Y				Dan Larson (800) 945-0016	Baseline	SJC	2/10/98	
246	Custom Abrasive Waterjet System	Phoenix		5/1/97			Y				Daniel Abarba (206) 872-1925	Baseline	SJC	2/11/98	
247	Cutting Torch- 9000 Series	Phoenix		5/1/97			Y				Arco Welding Products (770) 952-57	Baseline	SJC	2/10/98	
248	Decon High Pressure Unit- KS 10' x 15'	Phoenix		5/1/97			Y				Donald Pymm (516) 293-6688	Baseline	SJC	2/11/98	
249	Decon High Pressure Unit- KS 48' (2 refs)	Phoenix		5/1/97			Y				Donald Pymm (516) 293-6688	Baseline	SJC	2/11/98	
250	Decon High Pressure Unit- KS HP 42	Phoenix		5/1/97			Y				Donald Pymm (516) 293-6688	Baseline	SJC	2/11/98	
251	Decon High Pressure Unit- KS HP S' x 18'	Phoenix		5/1/97			Y				Donald Pymm (516) 293-6688	Baseline	SJC	2/11/98	
252	Decon High Pressure Unit- KS48 x 96	Phoenix		5/1/97			Y				Donald Pymm (516) 293-6688	Baseline	SJC	2/11/98	
253	Demolition Hammer- Wacker EH 23	Phoenix		5/1/97			Y				Wacker Corporation (414) 252-7296	Baseline	SJC	2/10/98	
254	Demolition Hammer- Wacker EHB 10/110	Phoenix		5/1/97			Y				Wacker Corporation (414) 252-7296	Baseline	SJC	2/10/98	

Tech	ID #	Technology Title	Date Source	Data Source Identifier	Data Source Date	1st Data Reference	2nd Data Reference	Available? Y/N	Current Stage	Next Stage Date	Last Stage Date	Availability POC	Baseline/ Alternative	Basic Data Entered by	Date of Basic Data Entry	LSDP Y/N
256		Demolition Hammer- Wacker EHB 7/S	Phoenix		5/1/97			Y				Wacker Corporation (414) 252-7296	Baseline	SJC	2/1/98	
257		Dry Ice Blast Unit- 400A, 400B	Phoenix		5/1/97			Y				Non-Destructive Cleaning, Inc. (508)	Baseline	SJC	2/1/98	
258		Dry Ice Blast Unit- Accelerator 1350-3	Phoenix		5/1/97			Y				Jim Becker (218) 696-8797	Baseline	SJC	2/1/98	
259		Dry Waste Hydraulic Compactor - Stock	Phoenix		5/1/97			Y				Stock Equipment Co, 800-289-7326	Baseline	MAM	2/1/98	
260		ELECTROSORB "C"	Phoenix		5/1/97			N				Henry L. Lomasney (504) 254-5172	Alternative	SJC	2/1/98	
261		Floor Contamination Monitor (Floor Monitor?)	Phoenix		5/1/97			Y				Ludlum Measurements Inc., (915)-2	Baseline	MAM	2/1/98	
262		Fork Lift	Phoenix		5/1/97			Y				Local Rental Co	Baseline	SJC	2/1/98	
263		Gas Flow Proportional Probe- HP-100A	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
264		Gas Flow Proportional Probe-HP-100B	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
265		Gas Phase Decontamination Process Demonstrator	Phoenix		5/1/97			N				Russ Riddle (814) 687-2331 ext 218	Alternative	SJC	2/1/98	
266		Gel Decontamination	Phoenix		5/1/97			N				CEA, France, Jouan, A. and Roudil	Alternative	SJC	2/1/98	
267		Generator	Phoenix		5/1/97			Y				Local Rental Co	Baseline	MAM	2/1/98	
268		GM Survey Meter- E-120	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
269		GM Survey Meter- E-140	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
270		GM Survey Meter- E-520	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
271		Guafoline Saw- Model C & D	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
272		Half Mask Silicone Respirator - A-S5500	Phoenix		5/1/97			Y				E H Wachs Co. 800-323-8185	Baseline	SJC	2/1/98	
273		Hand Probe- HP-190A	Phoenix		5/1/97			Y				Hazco Services Inc., 1-800-332-043	Baseline	MAM	2/1/98	
274		Hand Probe- HP-210AL	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
275		Hand Probe- HP-210L	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
276		Hand Probe- HP-260	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
277		Hand Probe- HP-270	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
278		Hand Probe- LEG-1	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
279		Hazardous Duty Mobile Robot- Andros 4X4	Phoenix		5/1/97			Y				Robert Pardue (423) 483-0228	Baseline	SJC	2/1/98	
280		Hazardous Duty Mobile Robot- Andros 6X6	Phoenix		5/1/97			Y				Robert Pardue (423) 483-0228	Baseline	SJC	2/1/98	
281		Hazardous Duty Mobile Robot- Andros Mark VI	Phoenix		5/1/97			Y				Robert Pardue (423) 483-0228	Baseline	SJC	2/1/98	
282		Hazardous Duty Mobile Robot- Mini Andros	Phoenix		5/1/97			Y				Robert Pardue (423) 483-0228	Baseline	SJC	2/1/98	
283		Hazardous Duty Mobile Robot- MISR	Phoenix		5/1/97			Y				Robert Pardue (423) 483-0228	Baseline	SJC	2/1/98	
284		Hazardous Duty Mobile Robot-Andros Mark V.	Phoenix		5/1/97			Y				Robert Pardue (423) 483-0228	Baseline	SJC	2/1/98	
285		Hepa-Vacuum- Several Models	Phoenix		5/1/97			Y				Alcia Heckman, (610) 647-6420	Baseline	MAM	2/1/98	
286		High Pressure Fluid Assisted Drill	Phoenix		5/1/97			Y				Daniel Alberts (208) 872-1925	Baseline	SJC	2/1/98	
287		High Range Survey System- RO-7	Phoenix		5/1/97			N				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
288		HighTemp Vacuum Distillation of Pu Salt	Phoenix		5/1/97			Y				Eduardo Garcia, (505) 687-0794	Alternative	MAM	2/1/98	
289		HPGe Waste Barrel Analyzer- Barrel Monitor	Phoenix		5/1/97			Y				Helgeson Scientific Services, (609) 7	Baseline	MAM	2/1/98	
290		HydraCutter C150- Concrete Saw	Phoenix		5/1/97			Y				Ace Equipment, Inc. (800) 446-4223	Baseline	SJC	2/1/98	
291		Hydraulic Backhoe / Crawler	Phoenix		5/1/97			Y				Local Rental Co	Baseline	SJC	2/1/98	
292		Hydraulic Pulse Generator- Water Cannon	Phoenix		5/1/97			Y				Daniel Alberts (208) 872-1925	Baseline	SJC	2/1/98	
293		Hydraulic Torque Wrench	Phoenix		5/1/97			N				Hyloric of New England (203) 245-84	Alternative	MAM	2/1/98	
294		In Situ Secondary Ion-Mass Spectrometry	Phoenix		5/1/97			Y				James E. Delmore, (208) 526-2820	Baseline	MAM	2/1/98	
295		Ionization Chamber- RO-2	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
296		Jetair Model-3- Ventilation Unit	Phoenix		5/1/97			Y				Tuthill Corp -Coppus PVD, (508) 756	Baseline	MAM	2/1/98	
297		Jetair Model-9- Ventilation Unit	Phoenix		5/1/97			Y				Tuthill Corp -Coppus PVD, (508) 756	Baseline	MAM	2/1/98	
298		Laser Ablation System for Metal & Concrete S	Phoenix		5/1/97			N				Erica Crivella (505) 271-0260	Alternative	SJC	2/1/98	
299		Light Aided Technologies	Phoenix		5/1/97			N				Kath A. Pauley, (509) 372-4088	Alternative	MAM	2/1/98	
300		Long Reach Scabblers- 150 5092-LR	Phoenix		5/1/97			Y				Dan Larson (800) 945-4018	Baseline	SJC	2/1/98	
301		Long Reach Scabblers- 150 5099-LR	Phoenix		5/1/97			Y				Dan Larson (800) 945-4018	Baseline	SJC	2/1/98	
302		Long Reach Scalers- 136 3299-2	Phoenix, ITSR-2102		5/1/97			Y				Dan Larson (800) 945-4018	Baseline	SJC	2/1/98	
303		Long Reach Scalers- 136 3497-4	Phoenix		5/1/97			Y				Dan Larson (800) 945-4018	Baseline	SJC	2/1/98	
304		Long Reach Scalers- 136 3699-6	Phoenix		5/1/97			Y				Dan Larson (800) 945-4018	Baseline	SJC	2/1/98	
305		Long Reach Scalers- 137 3697-6	Phoenix		5/1/97			Y				Dan Larson (800) 945-4018	Baseline	SJC	2/1/98	
306		Magnetic-Wheeled Robot for Carbon Steel Ins	Phoenix		5/1/97			Y				Dan Larson (800) 945-4018	Baseline	SJC	2/1/98	
307		Manipulator	Phoenix		5/1/97			Y				Leona Barnes (412) 785-3064	Baseline	SJC	2/1/98	
308		Mastri-Pump NE 5 hp	Phoenix		5/1/97			Y				Kraft Telebotronics, Inc. (913) 894-90	Baseline	SJC	2/1/98	
309		Microblasting	Phoenix		5/1/97			Y				Bartlett Nuclear, Inc. (800) 225-0385	Baseline	SJC	2/1/98	
310		Mini Scaler- MS-2	Phoenix		5/1/97			N				CEA, France, Jouan, A. and Roudil	Alternative	SJC	2/1/98	
311		Miniature-Sized, Real-Time Radiation Detector	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/1/98	
312		Mobile Cart Air Sampler- MRV-0523CV	Phoenix		5/1/97			Y				Eng-Kie Souw, (516) 344-5407	Alternative	MAM	2/1/98	
313		Mobile Facility- MDF-120	Phoenix		5/1/97			Y				HI-Q Environmental Products Co., (6	Baseline	MAM	2/1/98	
314		Mobile Office- MO208	Phoenix		5/1/97			Y				Interstate Nuclear Service Group (41	Baseline	SJC	2/1/98	
315		Mobile Radiation Detection & Mapping System-	Phoenix		5/1/97			Y				Doug Althaus, (800)782-1500	Baseline	MAM	2/1/98	
316		Multi Stripper- BMS-1000	Phoenix		5/1/97			Y				Brant Powell, (702) 897-3627	Baseline	MAM	2/1/98	
317		Needle Scaler- 110 1099-1B	Phoenix		5/1/97			Y				Dawson-Macdonald, Inc. (800) 556-	Baseline	SJC	2/1/98	
318		Needle Scaler- 141 4099-4B	Phoenix		5/1/97			Y				Dan Larson (800) 945-4018	Baseline	SJC	2/1/98	
319		Needle Scaler- Corner-Cutter	Phoenix		5/1/97			Y				Dan Larson (800) 945-4018	Baseline	SJC	2/1/98	
320		Needle Scaler- Van Arx NP-34	Phoenix		5/1/97			Y				Nancy Moore (412) 282-0725	Baseline	SJC	2/1/98	
321		Personal Air Sampler - 08-430	Phoenix		5/1/97			Y				Saxe Co (208) 762-0744	Baseline	SJC	2/1/98	
322		Pipe Cutter	Phoenix		5/1/97			Y				Victoreen Nuclear Associates Inc., (5	Baseline	MAM	2/1/98	
323		Plasma Cutting System Thermal Arc 500	Phoenix		5/1/97			Y				E H Wachs Co. 800-323-8185	Baseline	SJC	2/1/98	
324		Plasma Cutting System, Thermal Arc PAK 10X	Phoenix		5/1/97			Y				Thermal Dynamics Corp. (603) 298-	Baseline	SJC	2/1/98	
325		Plasma Cutting System, Thermal Arc PAK 44	Phoenix		5/1/97			Y				Thermal Dynamics Corp. (603) 298-	Baseline	SJC	2/1/98	
326		Plasma Cutting System, Thermal Arc PAK 45	Phoenix		5/1/97			Y				Thermal Dynamics Corp. (603) 298-	Baseline	SJC	2/1/98	
327		Plasma Torch	Phoenix		5/1/97			N				Thermal Dynamics Corp. (603) 298-	Baseline	SJC	2/1/98	
328		Plasma-Mass Spectrometry - ICP-MS	Phoenix		5/1/97			N				SAF, France	Alternative	SJC	2/1/98	
329		Pneumatic Nibblers- N 1000-1	Phoenix		5/1/97			Y				Robert Houk, (515) 294-9482	Alternative	MAM	2/1/98	
330		Pneumatic Nibblers- N 500-5	Phoenix		5/1/97			Y				Trumpf, Inc. (860) 674 -8226	Baseline	SJC	2/1/98	
331		Pneumatic Nibblers- N 700-1	Phoenix		5/1/97			Y				Trumpf, Inc. (860) 674 -8226	Baseline	SJC	2/1/98	
332		Pneumatic Pipe Cutter/Beveler- SF408 (Spk F	Phoenix		5/1/97			Y				Trumpf, Inc. (860) 674 -8226	Baseline	SJC	2/1/98	
333		Pneumatic Shears- S 420-1	Phoenix		5/1/97			Y				E H Wachs Co. 800-323-8185	Baseline	SJC	2/1/98	
334		Portable Blast Cleaning System (1-100 w/dust	Phoenix		5/1/97			Y				Trumpf, Inc. (860) 674 -8226	Baseline	SJC	2/1/98	
335		Portable Blast Cleaning System (1-150 w/dust	Phoenix		5/1/97			Y				Dawson-Macdonald, Inc. (800) 556-	Baseline	SJC	2/1/98	
336		Portable Blast Cleaning System (1-200 w/dust	Phoenix		5/1/97			Y				Dawson-Macdonald, Inc. (800) 556-	Baseline	SJC	2/1/98	
337		Portable Blast Cleaning System (1-800 w/dust c	Phoenix		5/1/97			Y				Dawson-Macdonald, Inc. (800) 556-	Baseline	SJC	2/1/98	
338		Portable Blast Cleaning System (1-800 w/dust	Phoenix		5/1/97			Y				Dawson-Macdonald, Inc. (800) 556-	Baseline	SJC	2/1/98	
339		Portable Blast Cleaning System (1-85 w/dust c	Phoenix		5/1/97			Y				Dawson-Macdonald, Inc. (800) 556-	Baseline	SJC	2/1/98	

Tech ID #	Technology Title	Data Source	Data Source Identifier	Data Source Date	1st Data Reference	2nd Data Reference	Available? Y/N	Current Stage	Next Stage Date	Last Stage Date	Availability POC	Baseline/Alternative	Basic Data Entered by	Date of Basic Data Entry	LSDP Y/N
340	Portable Blast Cleaning System (1-9DES), elec	Phoenix		5/1/97			Y				Dawson-Macdonald, Inc. (800) 556-	Baseline	SJC	2/11/98	
341	Portable Blast Cleaning System (1-9DES), pro	Phoenix		5/1/97			Y				Dawson-Macdonald, Inc. (800) 556-	Baseline	SJC	2/11/98	
342	Portable Cut-Off Saw-Wacker BTS-11	Phoenix		5/1/97			Y				Wacker Corporation (414) 252-7296	Baseline	SJC	2/10/98	
343	Portable Generator-Wacker G 3 5A	Phoenix		5/1/97			Y				Wacker Corporation (414) 252-7296	Baseline	MAM	2/10/98	
344	Portable Generator-Wacker G 3 7A	Phoenix		5/1/97			Y				Wacker Corporation (414) 252-7296	Baseline	MAM	2/10/98	
345	Portable Generator-Wacker G 5 6A	Phoenix		5/1/97			Y				Wacker Corporation (414) 252-7296	Baseline	MAM	2/10/98	
346	Portable Generator-Wacker GS 5 6A	Phoenix		5/1/97			Y				Wacker Corporation (414) 252-7296	Baseline	MAM	2/10/98	
347	Portable Lead Analyzer-Pb Analyzer	Phoenix		5/1/97			Y				TN Technologies Inc. (512) 338-910	Baseline	MAM	2/10/98	
348	Portable LIN-LOG Gas Proportional Alpha Cou	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/10/98	
349	Portable Ion Chamber-PIC-6B	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/10/98	
350	Portable Micro "R" Meter - ASP-1/SPA-3	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/10/98	
351	Portable Neutron rem Counter-ASP-1/NRD	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/10/98	
352	Portable Photometer - TDA-2G	Phoenix		5/1/97			Y				Jeffrey Kley, (410) 363-9696	Baseline	MAM	2/10/98	
353	Portable Ventilation System - NARED	Phoenix		5/1/97			Y				Alan McCandless, (757) 865-0920	Baseline	MAM	2/10/98	
354	Power Shovel	Phoenix		5/1/97			Y				Local Rental Co.	Baseline	SJC	2/11/98	
355	Radiation Monitor-RM-14S	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/10/98	
356	Radiation Monitor-RM-20	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/10/98	
357	Radiation Monitor-RM-21	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/10/98	
358	Radon Gas Meter - TN-Rn2000	Phoenix		5/1/97			Y				Rad Elec Inc., (800) 526-5482	Baseline	MAM	2/10/98	
359	Radon WL Meter - TN-WL-02	Phoenix		5/1/97			Y				Rad Elec Inc., (800) 526-5482	Baseline	MAM	2/10/98	
360	Reconfigurable In-Tank Mobile Robot	Phoenix		5/1/97			N				Bruce Thompson (412) 765-3064	Alternative	SJC	2/11/98	
361	Remote Clean & Coat System for Spent Fuel P	Phoenix		5/1/97			Y				Oceanseering Technologies (713) 57	Baseline	SJC	2/11/98	
362	Remote CO-2 Pellet Blasting System-ROVCO-	Phoenix		5/1/97			Y				Oceanseering Technologies (713) 57	Baseline	SJC	2/11/98	
363	Remote Decon & Dismantling Vehicle	Phoenix		5/1/97			Y				Leona Barnes (412) 765-3064	Baseline	SJC	2/11/98	
364	Remote Excavator-Haz-Trak	Phoenix		5/1/97			Y				Kraft Telerobotics, Inc. (913) 894-90	Baseline	SJC	2/11/98	
365	Remote Floor Scabbler-Moose	Phoenix		5/1/97			Y				Nancy Moore (412) 282-0725	Baseline	SJC	2/11/98	
366	Remote Internal Pipe Inspector	Phoenix		5/1/97			Y				Robert Pardue (423) 463-0228	Baseline	SJC	2/11/98	
367	Remote Work Platform for Tank Waste Retriev	Phoenix		5/1/97			Y				Leona Barnes (412) 765-3064	Baseline	SJC	2/11/98	
368	Remotely Operated Inspection Vehicle-M5 A	Phoenix		5/1/97			N				Kraft Telerobotics, Inc. (913) 894-90	Baseline	SJC	2/11/98	
369	Removing Plutonium from Waste Streams	Phoenix		5/1/97			N				Darlene Hoffman, (510) 423-5031	Alternative	MAM	2/10/98	
370	ROBOCON Operator Interface for Robotic App	Phoenix		5/1/97			N				Hagen Schenkel (412) 268-6884	Alternative	SJC	2/11/98	
371	Robotic End Effector for Inspection of Storage	Phoenix		5/1/97			N				Oceanseering Technologies (713) 57	Baseline	SJC	2/11/98	
372	Robotic System to Retrieve Tubes (TRR)	Phoenix		5/1/97			N				ANSALDO Genova, Italy, Robert La	Alternative	SJC	2/11/98	
373	Rotary Vane Low Volume Air Sampler- VS23-0	Phoenix		5/1/97			Y				Hi-Q Environmental Products Co., (6	Baseline	MAM	2/10/98	
374	Sampling Equipment- AMS 4130	Phoenix		5/1/97			Y				Hazco Services Inc., 1-800-332-043	Baseline	MAM	2/10/98	
375	Sampling Equipment- B-460 00	Phoenix		5/1/97			Y				Hazco Services Inc., 1-800-332-043	Baseline	MAM	2/10/98	
376	Scabbler-1-UF	Phoenix		5/1/97			Y				Bob Protze (800) 328-7773	Baseline	SJC	2/11/98	
377	Scabbler-3-WCD	Phoenix		5/1/97			Y				Bob Protze (800) 328-7773	Baseline	SJC	2/11/98	
378	Scabbler-CD-5	Phoenix		5/1/97			Y				Joe Compello (800) 638-3326	Baseline	SJC	2/11/98	
379	Scabbler-L-5	Phoenix		5/1/97			Y				Bob Protze (800) 328-7773	Baseline	SJC	2/11/98	
380	Scabbler-L-7	Phoenix		5/1/97			Y				Bob Protze (800) 328-7773	Baseline	SJC	2/11/98	
381	Scabbler-Squirrel	Phoenix, ITR-2102		5/1/97			Y				Nancy Moore (412) 282-0725	Baseline	SJC	2/11/98	
382	Scabbler-U-11	Phoenix		5/1/97			Y				Bob Protze (800) 328-7773	Baseline	SJC	2/11/98	
383	Scabbler-U-3	Phoenix		5/1/97			Y				Bob Protze (800) 328-7773	Baseline	SJC	2/11/98	
384	Scabbler-U-5	Phoenix		5/1/97			Y				Bob Protze (800) 328-7773	Baseline	SJC	2/11/98	
385	Scabbler-U-7	Phoenix		5/1/97			Y				Bob Protze (800) 328-7773	Baseline	SJC	2/11/98	
386	Scaling Hammers- 151 S199-SH-1	Phoenix		5/1/97			Y				Dan Larson (800) 945-4016	Baseline	SJC	2/11/98	
387	Scaling Hammers- 199 S190-HD SSH-3	Phoenix		5/1/97			Y				Dan Larson (800) 945-4016	Baseline	SJC	2/11/98	
388	Scantling Machine- MPL-SVR	Phoenix		5/1/97			Y				Ace Equipment, Inc. (800) 448-4223	Baseline	SJC	2/11/98	
389	Scintillation Probe - SPA-8	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/10/98	
390	Separation of HTO Using Membranes and Trn	Phoenix		5/1/97			N				David Nelson, (508) 378-0875	Alternative	SJC	2/11/98	
391	Shot Blaster- Goff 15e13	Phoenix		5/1/97			Y				Sese Co. (206) 762-0744	Baseline	SJC	2/11/98	
392	Shredder- Industrial Model	Phoenix		5/1/97			Y				Jacobson Co., (612) 544-8781	Baseline	MAM	2/10/98	
393	Shredder- Mobile	Phoenix		5/1/97			Y				SSI Shredding Systems, (503) 682-3	Baseline	MAM	2/10/98	
394	Smart Portable- ESP-1	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/10/98	
395	Smart Portable- ESP-2	Phoenix		5/1/97			Y				Eberline, (505) 473-3232	Baseline	MAM	2/10/98	
396	Soft Media and Blast Equipment	Phoenix		5/1/97			Y				ARMS, Inc. (919) 841-0847	Baseline	SJC	2/11/98	
397	Sponge-Jet Surface Prep & Cleaning System	Phoenix		5/1/97			Y				Sponge-Jet Inc. 800-776-8435	Baseline	SJC	2/11/98	
398	Sprung Instant Shelters	Phoenix		5/1/97			Y				Michael Dewey, 800-528-0809	Baseline	MAM	2/10/98	
399	Stripable Coating Removal	Phoenix		5/1/97			Y				Barlett Nuclear, Inc. (800) 225-0385	Baseline	SJC	2/11/98	
400	Tank Waste Retrieval/Surface Decon	Phoenix		5/1/97			Y				Daniel Alberts (206) 872-1925	Baseline	SJC	2/11/98	
401	Tractor w/Backhoe & Loader	Phoenix		5/1/97			Y				Local Rental Co.	Baseline	SJC	2/11/98	
402	Trash Pump	Phoenix		5/1/97			Y				Local Rental Co.	Baseline	SJC	2/11/98	
403	Tidum Contamination Monitor - 05-667	Phoenix		5/1/97			Y				Victoreen Nuclear Associates Inc., (5	Baseline	MAM	2/10/98	
404	TRUclean Soil Decon System - TRUclean	Phoenix		5/1/97			N				Brant Powell, (702) 897-3627	Alternative	MAM	2/10/98	
405	Tru-Motion Manipulator- Model 6 TM-2442	Phoenix		5/1/97			Y				Tru-Motion Products Division (704) 9	Baseline	SJC	2/11/98	
406	Underwater Remote Video Inspection System-	Phoenix		5/1/97			Y				Benthos, Inc. (508) 603-1000	Baseline	SJC	2/11/98	
407	Vac-Pac HEPA Vacuum- Model-9 Air Powered	Phoenix		5/1/97			Y				Nancy Moore (412) 282-0725	Baseline	SJC	2/11/98	
408	Vacuum Blast System- ABB U1-CP	Phoenix		5/1/97			Y				Dawson-Macdonald, Inc. (800) 556-	Baseline	SJC	2/11/98	
409	Vacuum Blaster- deKlyen dks 7116	Phoenix		5/1/97			Y				Sese Co. (206) 762-0744	Baseline	SJC	2/11/98	
410	Vacuum Blaster- P-06-2	Phoenix		5/1/97			Y				VacuBlast International (201) 245-63	Baseline	SJC	2/11/98	
411	Vacuum Blaster- P-08-2	Phoenix		5/1/97			Y				VacuBlast International (201) 245-63	Baseline	SJC	2/11/98	
412	Vacuum Blaster- PB-05U	Phoenix		5/1/97			Y				VacuBlast International (201) 245-63	Baseline	SJC	2/11/98	
413	Vacuum Blaster- S-04	Phoenix		5/1/97			Y				VacuBlast International (201) 245-63	Baseline	SJC	2/11/98	
414	Vacuum Blaster- SB-03	Phoenix		5/1/97			Y				VacuBlast International (201) 245-63	Baseline	SJC	2/11/98	
415	Vacuum Blaster- SH03	Phoenix		5/1/97			Y				VacuBlast International (201) 245-63	Baseline	SJC	2/11/98	
416	Vehicle Monitor-Remote w/ 2 Pylon Detectors-	Phoenix		5/1/97			Y				Xetex Inc., (408) 745-8654	Baseline	MAM	2/10/98	
417	Ventilation Unit- MAC-21 P/N FM37	Phoenix		5/1/97			Y				Dexter Balyas, (203) 434-0660	Baseline	MAM	2/10/98	
418	Ventilation Unit- PFX-1400A	Phoenix		5/1/97			Y				Tuthill Corp -Coppus PVD, (508) 756	Baseline	MAM	2/10/98	
419	Ventilation Unit- Portase Model- 4/6	Phoenix		5/1/97			Y				Tuthill Corp -Coppus PVD, (508) 756	Baseline	MAM	2/10/98	
420	Waste Compactors- MPC-60	Phoenix		5/1/97			Y				John Zimmer, (318) 367-6165	Baseline	MAM	2/10/98	
421	Water Soluble Polymers for Actinide Removal	Phoenix		5/1/97			N				Gordon Jannan, (505) 665-0822	Alternative	MAM	2/10/98	
422	Wire Saw-BBC-40	Phoenix		5/1/97			Y				Bluegrass Bt Co. (334) 382-9738	Baseline	SJC	2/10/98	
423	Passive Aerosol Generator	F-LSDP-A		4/8/96			Y				John Remark (904) 372-5214	Baseline	MAM	3/3/98	F-LSDP-A

Tech ID #	Technology Title	Data Source	Data Source Identifier	Data Source Date	1st Data Reference	2nd Data Reference	Available?- Y/N	Current Stage	Next Stage Date	Last Stage Date	Availability POC	Baseline/ Alternative	Basic Data Entered by	Date of Basic Data Entry	LSDP Y/N
424	Brokk BM250	F-LSDP-A		7/17/98			Y				Michael Napper 01441179293691	Baseline	MAM	3/2/98	F-LSDP-A
425	Hydraulic Cutting Device	F-LSDP-A		4/24/98			Y				Mariene 7 (805) 494-4558	Baseline	MAM	3/2/98	F-LSDP-A
426	Transite "Bot" Removal and Capture Device	F-LSDP-A		2/13/98			Y				Jen Barrett (513) 326-4368	Baseline	MAM	3/2/98	F-LSDP-A
427	Remotely Operated Mobile Worksystem	F-LSDP-A		2/12/98			Y				BNFL, Brokk, AEA	Baseline	MAM	3/3/98	F-LSDP-A
428	USRAIDS (soil characterization)	F-LSDP-A		5/28/98			Y				Chuck Flynn (423) 481-2511	Baseline	MAM	3/3/98	F-LSDP-A
429	Pneu-worm (REMOTEC Robots)	F-LSDP-R		5/20/98			Y				Mark Tcherneshoff (423) 483-0228	Baseline	MAM	2/26/98	F-LSDP-R
430	Infrared Spectroscopy	F-LSDP-R		5/20/98			Y				Dr Douglas Hoffman (423) 574-389	Baseline	MAM	2/26/98	F-LSDP-R
431	ANDROS Hazardous duty mobile robots	F-LSDP-R		5/20/98			Y				Mark Tcherneshoff (423) 483-0228	Baseline	MAM	2/26/98	F-LSDP-R
432	Wavelength Dispersive X-ray Spectroscopy	F-LSDP-R		5/20/98			Y				Dr Douglas Hoffman (423) 574-389	Baseline	MAM	2/26/98	F-LSDP-R
433	Telerobotic System	F-LSDP-R		4/1/98			Y				Tim Boorman (412) 655-1200	Baseline	MAM	2/26/98	F-LSDP-R
434	Remotely Controlled/Mobile Cutting & Support	F-LSDP-R		4/23/98			Y				Mark Tcherneshoff (423) 483-0228	Baseline	MAM	2/26/98	F-LSDP-R
435	Supplied Air Containment	F-LSDP-R					Y				Pete Pelletie (606) 234-8611	Baseline	MAM	2/26/98	F-LSDP-R
436	DECOHA Process Chemical Decontamination	F-LSDP-R		3/28/98			Y				Steve Ferguson (513) 779-1036	Baseline	MAM	2/26/98	F-LSDP-R
437	Actosol	F-LSDP-R		4/23/98			Y				Damen Wake (703) 222-0280	Baseline	MAM	2/26/98	F-LSDP-R
438	KSI Tentacle Manipulator	F-LSDP-R		4/24/98			Y				Guy Innega (804) 822-5782	Baseline	MAM	2/26/98	F-LSDP-R
439	PO"WW"ER Aqueous Waste Treatment	F-LSDP-R		3/13/98			?				Dr Richard Ayan	Baseline	MAM	2/26/98	F-LSDP-R
440	Akrighit Modular Workshop	F-LSDP-R		4/24/98			?				?	Baseline	MAM	3/2/98	F-LSDP-R
441	Plasma Arc Cutting Underwater	F-LSDP-R		5/28/98			Y				Norbert Eickelpasch 08224/78-2170	Baseline	MAM	3/2/98	F-LSDP-R
442	Laser Photoacoustic Spectroscopy	F-LSDP-R		5/20/98			Y				Dr Douglas Hoffman (423) 574-389	Baseline	MAM	2/26/98	F-LSDP-R
443	Plasma Arc Fixed-Hearth Furnace	TMS	26	2/26/98			Y	6	9/30/97	3/30/98	RETECH (707) 482-0522	Baseline	MAM	2/26/98	F-LSDP-R
444	Vortex Combustion Melt System	TMS	68	3/2/98			Y	6	6/30/98	6/30/98	John Patten (810) 489-2255	Alternative	MAM	3/2/98	F-LSDP-R
445	Gas Phase Decontamination Process for Gase	TMS	88	2/26/98			N	6	na	na	Russ Riddle (814) 897-2331	Alternative	MAM	2/26/98	F-LSDP-R
446	Catalytic Chemical Oxidation (Delphi Detox)	TMS	108	3/2/98			N	5	9/30/98	9/30/98	Patrick Dhooge (505) 243-3111	Alternative	MAM	3/2/98	F-LSDP-R
447	Low Temperature Thermal Desorption (Vac Tr	TMS	107	2/26/98			N	7	na	na	Ed Wannemaker (303) 914-2800	Alternative	MAM	2/26/98	F-LSDP-R
448	Waste Inspection Tomography (WIT)	TMS	259	2/26/98			Y	7	na	na	Richard Bernardi (847) 634-6425	Alternative	MAM	2/26/98	F-LSDP-R
449	Intelligent Inspection and Survey Robot	TMS	272	2/26/98			Y	6	7/31/98	9/30/98	John Holland (800) 762-6848	Alternative	MAM	2/26/98	F-LSDP-R
450	Multi-Analyte, Single Fiber Optical Sensor	TMS	363	2/26/98			Y	6	na	na	Rick DeFilippi (Arlana Technologies	Alternative	MAM	2/26/98	F-LSDP-R
451	Associated Particle Imaging Development	TMS	413	2/26/98			N	6	na	na	Carolene Purdy (301) 903-7672	Alternative	MAM	2/26/98	F-LSDP-R
452	Tooling Systems for Massive Equipment Size	TMS	1462	2/26/98			N	5	na	na	Charles Hensley (423) 574-3673	Alternative	MAM	2/26/98	F-LSDP-R
453	3-D Mapping System	105-C ISSP		?			Y				Shepherd-Miller (970) 223-9600	Baseline	SJC	2/27/98	N
454	Automatic Conveyor Monitor	105-C ISSP		?			Y				Canberra Nuclear (423) 282-4621	Baseline	SJC	2/27/98	N
455	Box and Container Counter System	105-C ISSP		?			Y				Canberra Nuclear (423) 282-4621	Baseline	SJC	2/27/98	N
456	Field-Portable Energy Dispersive X-Ray Fluore	105-C ISSP		?			Y				Advanced Analytical Products & Ser	Baseline	SJC	2/27/98	N
457	Gamma Spectroscopy	105-C ISSP		?			Y				AEA Technology	Baseline	SJC	2/27/98	N
458	Imaging Nuclear Survey Instrumentation	105-C ISSP		?			Y				Radiation Monitoring Devices, Inc. (8	Baseline	SJC	2/27/98	N
459	In-Situ Gamma Spectroscopy Counting Syste	105-C ISSP		?			Y				Canberra Nuclear (423) 282-4621	Baseline	SJC	2/27/98	N
460	JQ3 Drum Counting System	105-C ISSP		?			Y				Canberra Nuclear (423) 282-4621	Baseline	SJC	2/27/98	N
461	Chemical Decontamination with Recycle	105-C ISSP		?			Y				Canberra Nuclear (423) 282-4621	Baseline	SJC	2/27/98	N
462	Laser Ablation Decontamination	105-C ISSP		?			Y				B&W Nuclear Environmental Service	Baseline	SJC	2/27/98	N
463	Laser Based Coating Removal System	105-C ISSP		?			Y				Integrated Automation Systems	Baseline	SJC	2/27/98	N
464	Laser Surface Decontamination	105-C ISSP		?			Y				F2 Associates (505) 271-0280	Baseline	SJC	2/27/98	N
465	Liquid Abrasive Blast Cleaning	105-C ISSP		?			Y				Rockwell Aerospace, Rocketdyne DI	Baseline	SJC	2/27/98	N
466	Strippable Polymer	105-C ISSP		?			Y				Kleber & Schutz, Inc. (516) 293-668	Baseline	SJC	2/27/98	N
467	Air Cooled Respirator/Suit	105-C ISSP		?			Y				Bartlett Services, Inc. (508) 748-848	Baseline	SJC	2/27/98	N
468	Hu Fab Sack Suit	105-C ISSP		?			Y				Oceanesing Technologies (713) 48	Baseline	SJC	2/27/98	N
469	Bulk Media Processing	105-C ISSP		?			Y				G/O Corporation	Baseline	SJC	2/27/98	N
470	Processing ACM for Disposal	105-C ISSP		?			Y				U S Ecology (423) 220-5209	Baseline	SJC	2/27/98	N
471	Characterization Data Management Systems	105-C ISSP		?			Y				Asbestos Recycling, Inc. (206) 575-9	Baseline	SJC	2/27/98	N
472	In-Situ Gamma Spectroscopy Counting Syste	105-C ISSP		?			Y					Baseline	SJC	2/27/98	N
473	In-Situ Gamma Spectroscopy Counting Syste	105-C ISSP		?			Y					Baseline	SJC	2/27/98	N
474	Waste Sorting/Segregation	105-C ISSP		?			Y					Baseline	SJC	2/27/98	N
475	Decontamination Gel	105-C ISSP		?			Y				U S Ecology, Inc	Baseline	SJC	2/27/98	N
476	Ultrasonic	105-C ISSP		?			Y				STMI	Baseline	SJC	2/27/98	N
477	Steel Plates and Grout	105-C ISSP		?			Y				Bartlett Services, Inc	Baseline	SJC	2/27/98	N
478	Light Weight Sheeting	105-C ISSP		?			Y					Baseline	SJC	2/27/98	N
479	Spray on Encapsulant	105-C ISSP		?			Y					Baseline	SJC	2/27/98	N
480	Bio Surface Degradation	Demo Summary		1/24/97			Y					Baseline	SJC	2/27/98	N
481	LN2 Carrier w/Solid CO2 Particles	Demo Summary		1/24/97			Y					Baseline	DM	3/2/98	
482	Long Range Alpha Detector	Demo Summary		1/24/97			Y					Baseline	DM	3/2/98	
483	Mobile Aqueous Borne Ozone Laundry Service	Demo Summary		1/24/97			Y					Baseline	DM	3/2/98	
484	Nomad Facility Characterization	Demo Summary		1/24/97			Y					Baseline	DM	3/2/98	
485	Nomad Waste Characterization	Demo Summary		1/24/97			Y					Baseline	DM	3/2/98	
486	Off-site Laundry Service for Reusable Clothing	Demo Summary		1/24/97			Y					Baseline	DM	3/2/98	
487	Photogrammetry	Demo Summary		1/24/97			Y					Baseline	DM	3/2/98	
488	Pipe Walker	Demo Summary		1/24/97			Y					Baseline	DM	3/2/98	
489	Plastic Pellet Blasting	Demo Summary		1/24/97			Y					Baseline	DM	3/2/98	
490	Quik-Solid Superabsorbent Polymer	Demo Summary		1/24/97			Y					Baseline	DM	3/2/98	
491	Radscan	Demo Summary		1/24/97			Y					Baseline	DM	3/2/98	
492	Thermal Wear RiteCharge	Demo Summary		1/24/97			Y					Baseline	DM	3/2/98	
494	Water Soluble Polymers for RCRA Waste Rem	TMS	1439	3/23/98			N	0	9/30/98	na		Alternative	RV	3/23/98	
495	Self-assembled Monolayers on Mesoporous S	TMS	1447	3/23/98			na	na	9/30/97	na		Alternative	RV	3/23/98	
496	Mercury Amalgamation and Stabilization	TMS	1630	3/23/98			N	6	9/30/97	na		Alternative	RV	3/23/98	
497	Mercury Removal from Solid Mixed Waste	TMS	1708	3/23/98			Y	4	3/23/98	9/30/00		Alternative	RV	3/23/98	
498	Rapid Surface Sampling and Archive Record S	TMS	96	3/23/98			N	5	na	na		Alternative	RV	3/23/98	
499	Small Pipe Characterization System	TMS	43	3/23/98			Y	6	na	na		Alternative	RV	3/23/98	
500	In Situ Chemical Treatment of Asbestos	TMS	73	3/23/98			N	6	na	na	Blair J Hough, Foster-Miller, Inc. (81	Alternative	RV	3/23/98	
501	Internal Duct Characterization System	TMS	42	3/23/98			Y	7	na	na		Alternative	RV	3/23/98	
502	Anion Exchange Resin Development for Techni	TMS	400	3/23/98			N	5	na	na	Terry Knight, Inukton Services, Ltd. {	Alternative	RV	3/23/98	
504	DISPM (In Situ Pu Inventory Monitor)	TMS	133	3/23/98			N	4	na	na		Alternative	RV	3/23/98	
505	TRU Piece Package Monitor	ODS Table 0 9 1										Alternative	RV	3/23/98	
506	TRUCHEM Decontamination	ODS Table 0 9 1										Alternative	RV	3/23/98	
507	Electrolytic Decontamination	ODS Table 0 9 1										Alternative	RV	3/23/98	
508	Robotics Size Reduction Facility	ODS Table 0 9 1										Alternative	RV	3/23/98	

Tech ID #	Technology Title	Data Source	Data Source Identifier	Data Source Date	1st Data Reference	2nd Data Reference	Available?-Y/N	Current Stage	Next Stage Date	Last Stage Date	Availability POC	Baseline/Alternative	Basic Data Entered by	Date of Basic Data Entry	LSDP Y/N
509	Plasma Arc Torch w/Enhanced Fume Control	ODS Table 0 9 1										Alternative	RV	3/23/98	
510	Beryllium Swipe Monitor	ODS Table 0 9 1										Alternative	RV	3/23/98	
511	SS&C Cementation	ODS Table 0 9 1										Alternative	RV	3/23/98	
512	Ash Cementation	ODS Table 0 9 1										Alternative	RV	3/23/98	
513	Vertical Calciner	ODS Table 0 9 1										Alternative	RV	3/23/98	
514	Reducing grout	ODS Table 0 9 1										Alternative	RV	3/23/98	
515	Diamond wire cutting	ODS Table 0 9 1										Alternative	RV	3/23/98	
516	Beryllium Air Monitor	ODS Table 0 9 1										Alternative	RV	3/23/98	
517	Automatic Demolition Dust Suppression Syste	TMS, ITR-2154	2154	8/3/98				5			Keith Pauley (PI, PNNL) (509) 372-4	Alternative	MAM	9/28/98	Y
518	Compact Subsurface Investigation System	TMS, ITR-2153	2153	8/3/98			Y	5				Alternative	MAM	9/28/98	Y
519	Concrete Diamond Grinder	TMS, ITR-2102	2102	8/3/98				5				Alternative	MAM	9/28/98	Y
520	Concrete Spaller	TMS, ITR-2152	2152	8/3/98				5				Alternative	MAM	9/28/98	Y
521	Liquid-Nitrogen Cooled Diamond-Wire Concret	TMS, ITR-2107	2107	8/3/98				5				Alternative	MAM	9/28/98	Y
522	Reactor Slabblazer	TMS, ITR-1839	1839	8/3/98				5				Baseline	MAM	9/28/98	Y
523	High Pressure Water Cleaning	ITSR-1780										Baseline	MAM	9/28/98	Y
524	Manual Alpha-Beta (FM-4G)	ITSR-1798										Baseline	MAM	9/28/98	Y
525	Manual Alpha-Beta (Electra NE)	ITSR-2098										Baseline	MAM	9/28/98	Y
526	Coring/Off-Site Analysis	ITSR-1840										Baseline	MAM	9/28/98	Y
527	Manual Gamma (Eberline RO-7)	ITSR-1948										Baseline	MAM	9/28/98	Y
528	Hydraulic Shear	ITSR-2154										Baseline	MAM	9/28/98	Y
529	Concrete Dust Suppression	ITSR-1793										Baseline	MAM	9/28/98	Y
530	Manual Radiologic (Gamma) Survey	ITSR-1946										Baseline	MAM	9/28/98	Y
531	Radiation Detection Probe	ITSR-1942										Baseline	MAM	9/28/98	Y
532	Hand Held Floor Contamination Monitor	ITSR-1476										Baseline	MAM	9/28/98	Y
533	Manual Wall Radiologic Survey	ITSR-1839										Baseline	MAM	9/28/98	Y
534	Spray-On Coating	ITSR-1795										Baseline	MAM	9/28/98	Y
535	Portable Generator	ITSR-1795										Baseline	MAM	9/28/98	Y
536	Restore Existing Plant Electrical	ITSR-1795										Baseline	MAM	9/28/98	Y
537	Hand Held Frisker with Swipes	ITSR-1999										Baseline	SJC	9/28/98	Y

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APPENDIX C

A3. ECC CODES

Tech #	ID	Technology Title	Data Source	Data Source Identifier	(00) Decommissioning Categories	(01) Material Types	(02) Process Types	(03) Process Sub-Types	(04) Condition Categories	(05) Condition Sub-Categories	Basic Data Entered By	Comment
1		Portable Sensor for Hazardous Waste	TMS	31	01	01	01	01	11	99	TAE	Sample acquisition system is very poorly defined
1		Portable Sensor for Hazardous Waste	TMS	31	01	02	01	01	11	99	TAE	Sample acquisition system is very poorly defined
1		Portable Sensor for Hazardous Waste	TMS	31	01	03	01	01	11	99	TAE	Sample acquisition system is very poorly defined
1		Portable Sensor for Hazardous Waste	TMS	31	01	01	01	01	12	99	TAE	Sample acquisition system is very poorly defined
1		Portable Sensor for Hazardous Waste	TMS	31	01	02	01	01	12	99	TAE	Sample acquisition system is very poorly defined
1		Portable Sensor for Hazardous Waste	TMS	31	01	03	01	01	12	99	TAE	Sample acquisition system is very poorly defined
1		Portable Sensor for Hazardous Waste	TMS	31	02	05	01	01	11	99	TAE	Sample acquisition system is very poorly defined
1		Portable Sensor for Hazardous Waste	TMS	31	02	06	01	01	11	99	TAE	Sample acquisition system is very poorly defined
1		Portable Sensor for Hazardous Waste	TMS	31	02	07	01	01	11	99	TAE	Sample acquisition system is very poorly defined
1		Portable Sensor for Hazardous Waste	TMS	31	02	05	01	01	12	99	TAE	Sample acquisition system is very poorly defined
1		Portable Sensor for Hazardous Waste	TMS	31	02	06	01	01	12	99	TAE	Sample acquisition system is very poorly defined
1		Portable Sensor for Hazardous Waste	TMS	31	02	07	01	01	12	99	TAE	Sample acquisition system is very poorly defined
2		Laser Surface Cleaning	TMS	32	01	01	02	07	01	01	TAE	
2		Laser Surface Cleaning	TMS	32	01	01	02	07	02	01	TAE	
2		Laser Surface Cleaning	TMS	32	01	01	02	08	01	01	TAE	
2		Laser Surface Cleaning	TMS	32	01	01	02	08	02	01	TAE	
2		Laser Surface Cleaning	TMS	32	01	02	02	11	03	01	TAE	
2		Laser Surface Cleaning	TMS	32	01	02	02	11	04	01	TAE	
3		Interactive, Computer-Enhanced, Remote Viewing System	TMS	33	01	00	07	99	99	99	TAE	Does not fit within PDT very well
4		Pipe Explorer (TM) System	TMS	74	01	02	01	02	12	99	TAE	
4		Pipe Explorer (TM) System	TMS	74	01	02	01	02	11	99	TAE	
5		Advanced Worker Protection System	TMS	75	01	00	06	36	99	99	TAE	
6		Stainless Steel Beneficial Reuse	TMS	80	02	02	05	32	99	99	TAE	
7		CORPEX Nuclear Decontamination Process	TMS	87	01	01	02	07	01	01	TAE	
7		CORPEX Nuclear Decontamination Process	TMS	87	01	01	02	07	02	01	TAE	
7		CORPEX Nuclear Decontamination Process	TMS	87	01	01	02	08	01	01	TAE	
7		CORPEX Nuclear Decontamination Process	TMS	87	01	01	02	08	02	01	TAE	
7		CORPEX Nuclear Decontamination Process	TMS	87	01	02	02	10	03	01	TAE	
7		CORPEX Nuclear Decontamination Process	TMS	87	01	02	02	10	04	01	TAE	
7		CORPEX Nuclear Decontamination Process	TMS	87	01	02	02	11	05	01	TAE	
7		CORPEX Nuclear Decontamination Process	TMS	87	01	02	02	11	06	01	TAE	
8		Remote-Operated Vehicle, Dry Ice Pellet Decontamination System	TMS	91	01	01	02	07	01	01	TAE	
8		Remote-Operated Vehicle, Dry Ice Pellet Decontamination System	TMS	91	01	01	02	07	01	02	TAE	
9		Coherent Laser Vision System	TMS	94	01	00	07	99	99	99	TAE	
10		Protective Clothing Based on Permselective Membrane and Carbon Adsorption	TMS	95	01	00	06	99	99	99	TAE	
11		Three Dimensional, Integrated Characterization and Archiving System (3D-ICAS)	TMS	97	01	01	01	01	11	99	TAE	
11		Three Dimensional, Integrated Characterization and Archiving System (3D-ICAS)	TMS	97	01	02	01	01	11	99	TAE	
11		Three Dimensional, Integrated Characterization and Archiving System (3D-ICAS)	TMS	97	01	03	01	01	11	99	TAE	
11		Three Dimensional, Integrated Characterization and Archiving System (3D-ICAS)	TMS	97	01	01	01	01	12	99	TAE	
11		Three Dimensional, Integrated Characterization and Archiving System (3D-ICAS)	TMS	97	01	02	01	01	12	99	TAE	
11		Three Dimensional, Integrated Characterization and Archiving System (3D-ICAS)	TMS	97	01	03	01	01	12	99	TAE	
12		Houdini: Reconfigurable In Tank Mobile Robot	TMS	98	02	06	05	29	99	99	TAE	
12		Houdini: Reconfigurable In Tank Mobile Robot	TMS	98	01	00	07	99	99	99	TAE	
13		Portable X-Ray, K-Edge Heavy Metal Detector	TMS	134	01	00	01	02	99	99	MAM	
14		Asbestos Pipe-Insulation Removal System	TMS	148	01	04	05	31	99	99	TAE	
14		Asbestos Pipe-Insulation Removal System	TMS	148	01	04	05	29	99	99	TAE	
15		Thermal Conversion of Asbestos	TMS	224	01	04	08	42	99	99	TAE	
16		Diagnostics and Data Fusion of Robotic Sensors	TMS	227	01	00	07	99	99	99	TAE	
17		Decontamination and Conversion of Nickel Radioactive Scrap Metal	TMS	234	01	02	05	32	99	99	TAE	

Tech #	ID	Technology Title	Data Source	Data Source Identifier	(00) Decommissioning Categories	(01) Material Types	(02) Process Types	(03) Process Sub-Types	(04) Condition Categories	(05) Condition Sub-Categories	Basic Data Entered By	Comment
17		Decontamination and Conversion of Nickel Radioactive Scrap Metal	TMS	234	01	02	05	33	99	99	TAE	
18		Operator Interface for Robotic Applications	TMS	281	01	00	07	99	99	99	TAE	
19		Soda Blasting Decontamination Process	TMS	369	01	01	02	07	01	01	TAE	
19		Soda Blasting Decontamination Process	TMS	369	01	01	02	08	01	01	TAE	
19		Soda Blasting Decontamination Process	TMS	369	01	02	02	10	03	02	TAE	
19		Soda Blasting Decontamination Process	TMS	369	01	02	02	10	04	02	TAE	
19		Soda Blasting Decontamination Process	TMS	369	01	02	02	11	05	01	TAE	
19		Soda Blasting Decontamination Process	TMS	369	01	02	02	11	06	02	TAE	
20		Field Raman Spectrograph	TMS	873	01	00	01	01	11	99	TAE	
21		Removal of Contaminants from Equipment and Debris, and Waste Minimization Using TECHXTRACT	TMS	1450	01	02	02	10	03	06	TAE	
21		Removal of Contaminants from Equipment and Debris, and Waste Minimization Using TECHXTRACT	TMS	1450	01	02	02	10	04	06	TAE	
21		Removal of Contaminants from Equipment and Debris, and Waste Minimization Using TECHXTRACT	TMS	1450	02	05	02	99	99	99	TAE	
22		Walt Walker	TMS	1476	01	01	02	08	01	05	TAE	
23		Laser Cutting and Size Reduction	TMS	1477	01	02	03	99	99	99	TAE	
24		Specialized Separation Utilizing 3m Membrane Technology	TMS	1543	01	07	08	39	99	99	TAE	
25		Decontamination of Process Equipment Using Four Technologies	TMS	1594	01	02	02	10	99	99	TAE	
26		SEG Recycle and Reuse of Radioactively Contaminated Scrap Metal	TMS	1595	01	02	05	32	99	99	TAE	
27		Spray Vacuum Cleaning	TMS	1780	01	02	02	10	04	99	TAE	
28		VecLoader HEPA VAC	TMS	1784	01	04	05	29	99	99	TAE	
28		VecLoader HEPA VAC	TMS	1784	01	04	05	31	99	99	TAE	
29		Dual Arm Work Platform	TMS	1787	01	02	03	18	99	99	TAE	
30		Portable X-Ray Fluorescence Detector	TMS	1790	01	02	01	02	11	99	TAE	
31		Gamma Ray Imaging (C-Reactor LSDP)	TMS	1793	01	01	01	01	12	99	TAE	
31		Gamma Ray Imaging (C-Reactor LSDP)	TMS	1793	01	02	01	01	12	99	TAE	
31		Gamma Ray Imaging (C-Reactor LSDP)	TMS	1793	01	03	01	01	12	99	TAE	
32		Mobile Integrated Temporary Utility System	TMS	1795	01	00	06	99	99	99	TAE	
33		Starboldt (TM) Flashlamp	TMS	1796	01	01	02	07	01	01	TAE	
33		Starboldt (TM) Flashlamp	TMS	1796	01	02	02	11	99	99	TAE	
34		Mobile Automated Characterization System(CP-5 LSDP)	TMS	1798	01	01	01	01	99	99	TAE	
35		Mobile Work System (ROSIE)	TMS	1799	01	00	07	99	99	99	TAE	
36		High Speed Clam Shell Cutter	TMS	1807	01	02	03	99	99	99	TAE	
37		Pipe Crawler (CP-5 Femald LSDPs)	TMS	1810	01	02	01	02	11	99	TAE	
37		Pipe Crawler (CP-5 Femald LSDPs)	TMS	1810	01	02	01	02	12	99	TAE	
38		Piping Inspection (Femald LSDP)	TMS	1811	01	02	01	02	11	99	TAE	
39		Rotary Peening with Captive Shot	TMS	1812	01	01	02	07	01	01	TAE	
39		Rotary Peening with Captive Shot	TMS	1812	01	01	02	07	01	02	TAE	
39		Rotary Peening with Captive Shot	TMS	1812	01	01	02	07	01	03	TAE	
39		Rotary Peening with Captive Shot	TMS	1812	01	01	02	07	01	04	TAE	
39		Rotary Peening with Captive Shot	TMS	1812	01	01	02	07	01	05	TAE	
40		Swing-Reduced Crane Control	TMS	1815	01	00	07	99	99	99	TAE	
41		Void Filling Using an Expanded Polyurethane Foam	TMS	1816	01	00	05	31	99	99	TAE	
42		Gamma Cam (TM) Radiation Imaging System	TMS	1840	01	01	01	01	12	99	TAE	
42		Gamma Cam (TM) Radiation Imaging System	TMS	1840	01	02	01	01	12	99	TAE	
42		Gamma Cam (TM) Radiation Imaging System	TMS	1840	01	03	01	01	12	99	TAE	
43		Void Filling Using Low-Density Cellular Concrete	TMS	1848	01	00	05	31	99	99	TAE	
44		Oxy-Gasoline Torch (Femald LSDP)	TMS	1847	01	02	03	19	09	99	TAE	
44		Oxy-Gasoline Torch (Femald LSDP)	TMS	1847	01	02	03	20	09	99	TAE	
45		Centrifugal Shot Blasting	TMS	1851	01	01	02	07	01	05	TAE	

Tech ID #	Technology Title	Data Source	Data Source Identifier	(00) Decommissioning Categories	(01) Material Types	(02) Process Types	(03) Process Sub-Types	(04) Condition Categories	(05) Condition Sub-Categories	Basic Data Entered By	Comment
46	FRHAM-TEX Anti Contamination Suit	TMS	1854	01	00	06	38	99	99	TAE	
47	Field Transportable Beta Counter Spectrometer	TMS	1853	01	00	01	01	11	99	TAE	
47	Field Transportable Beta Counter Spectrometer	TMS	1853	01	00	01	01	12	99	TAE	
48	Nu-Fab Anti Contamination Suit	TMS	1855	01	00	06	38	99	99	TAE	
49	Personal Ice Cooling (PIC) System	TMS	1898	01	00	06	38	99	99	TAE	
50	Soft Media Blast Cleaning	TMS	1899	01	01	02	07	01	01	TAE	
50	Soft Media Blast Cleaning	TMS	1899	01	01	02	08	01	01	TAE	
50	Soft Media Blast Cleaning	TMS	1899	01	02	02	11	05	01	TAE	
50	Soft Media Blast Cleaning	TMS	1899	01	02	02	11	06	01	TAE	
52	Surface Contamination Monitor and Survey Information Management System (SCM/SIMS)	TMS	1942	01	01	01	01	01	99	TAE	
53	ROTO PEEN Scaler and VAC PAC System	TMS	1943	01	01	02	07	01	01	TAE	
53	ROTO PEEN Scaler and VAC PAC System	TMS	1943	01	01	02	07	02	01	TAE	
53	ROTO PEEN Scaler and VAC PAC System	TMS	1943	01	01	02	08	01	01	TAE	
53	ROTO PEEN Scaler and VAC PAC System	TMS	1943	01	01	02	08	02	01	TAE	
53	ROTO PEEN Scaler and VAC PAC System	TMS	1943	01	02	02	11	05	01	TAE	
53	ROTO PEEN Scaler and VAC PAC System	TMS	1943	01	02	02	11	06	01	TAE	
54	Pegasus Coating Removal (CP-5 LSDP)	TMS	1945	01	01	02	07	01	01	TAE	
54	Pegasus Coating Removal (CP-5 LSDP)	TMS	1945	01	01	02	07	02	01	TAE	
54	Pegasus Coating Removal (CP-5 LSDP)	TMS	1945	01	01	02	08	01	01	TAE	
54	Pegasus Coating Removal (CP-5 LSDP)	TMS	1945	01	01	02	11	05	01	TAE	
54	Pegasus Coating Removal (CP-5 LSDP)	TMS	1945	01	02	02	11	06	01	TAE	
55	Laser Assisted Ranging and Data System (C-Reactor LSDP)	TMS	1946	01	00	01	01	99	99	TAE	
56	System for Tracking Remediation, Exposure, Activities and Materials (STREAM)	TMS	1947	01	00	06	99	99	99	TAE	
57	Self Contained Pipe Cutting Shear	TMS	1948	01	02	03	99	99	99	TAE	
58	Concrete Shaving System (C-Reactor LSDP)	TMS	1950	01	01	02	07	01	03	TAE	
59	Heat Stress Monitoring System (C-Reactor LSDP)	TMS	1953	01	00	06	35	99	99	TAE	
60	Sealed-Seam Sack Suit (C-Reactor LSDP)	TMS	1954	01	00	06	38	99	99	TAE	
61	Advanced Recyclable Media System (CP-5 LSDP)	TMS	1971	01	01	02	07	01	99	TAE	
61	Advanced Recyclable Media System (CP-5 LSDP)	TMS	1971	01	01	02	07	02	99	TAE	
61	Advanced Recyclable Media System (CP-5 LSDP)	TMS	1971	01	01	02	08	01	99	TAE	
61	Advanced Recyclable Media System (CP-5 LSDP)	TMS	1971	01	01	02	08	02	99	TAE	
61	Advanced Recyclable Media System (CP-5 LSDP)	TMS	1971	01	02	02	10	04	99	TAE	
62	Ground Based Laser Induced Fluorescence Imaging	TMS	1999	01	01	01	01	01	99	TAE	
63	In Situ object Counting System	TMS	2098	01	01	01	01	99	99	MAM	
64	Remote Scabbler	TMS	2099	01	01	02	07	01	99	MAM	
65	Remote Control Concrete Demolition System	TMS	2100	01	01	04	99	99	99	MAM	
66	RESRAD-Build	TMS	2103	01	00	06	34	99	99	TAE	
66	RESRAD-Build	TMS	2103	01	00	06	35	99	99	TAE	
67	Wireless Remote Monitoring System	TMS	2104	01	00	06	34	99	99	TAE	
67	Wireless Remote Monitoring System	TMS	2104	01	00	06	35	99	99	TAE	
68	Robot Task Space Handler	TMS	8999	01	00	07	99	99	99	TAE	
69	Acid Etching	PAM	3 1 1	01	01	02	07	01	03	SJC	potential
69	Acid Etching	PAM	3 1 1	01	01	02	07	02	03	SJC	potential
69	Acid Etching	PAM	3 1 1	01	01	02	08	01	03	SJC	potential
69	Acid Etching	PAM	3 1 1	01	01	02	08	02	03	SJC	potential
69	Acid Etching	PAM	3 1 1	02	05	08	39	99	99	MAM	potential
69	Acid Etching	PAM	3 1 1	02	05	08	43	99	99	MAM	potential
69	Acid Etching	PAM	3 1 1	02	05	08	99	99	99	MAM	potential
70	Acid/Hydrogen Peroxide Dissolution	PAM	3 1 2	01	02	02	09	99	99	SJC	potential
70	Acid/Hydrogen Peroxide Dissolution	PAM	3 1 2	02	05	08	37	99	99	MAM	potential
70	Acid/Hydrogen Peroxide Dissolution	PAM	3 1 2	02	05	08	38	99	99	MAM	potential
70	Acid/Hydrogen Peroxide Dissolution	PAM	3 1 2	02	05	08	39	99	99	MAM	potential
70	Acid/Hydrogen Peroxide Dissolution	PAM	3 1 2	02	05	08	40	99	99	MAM	potential
70	Acid/Hydrogen Peroxide Dissolution	PAM	3 1 2	02	05	08	41	99	99	MAM	potential
70	Acid/Hydrogen Peroxide Dissolution	PAM	3 1 2	02	05	08	43	99	99	MAM	potential
70	Acid/Hydrogen Peroxide Dissolution	PAM	3 1 2	02	05	08	99	99	99	MAM	potential

Tech ID #	Technology Title	Data Source	Data Source Identifier	(00) Decommissioning Categories	(01) Material Types	(02) Process Types	(03) Process Sub-Types	(04) Condition Categories	(05) Condition Sub-Categories	Basic Data Entered By	Comment
71	Alkaline Permanganate/Ammonium Citrate/Ethylenediaminetetraacetic Acid (APACE) Process	PAM	3 1 3	01	02	02	12	07	99	SJC	potential
72	Alkaline Salts	PAM	3 1 4	02	05	08	38	99	99	MAM	potential
72	Alkaline Salts	PAM	3 1 4	02	05	08	39	99	99	MAM	potential
72	Alkaline Salts	PAM	3 1 4	02	05	08	41	99	99	MAM	potential
72	Alkaline Salts	PAM	3 1 4	02	05	08	43	99	99	MAM	potential
72	Alkaline Salts	PAM	3 1 4	02	05	08	99	99	99	MAM	potential
73	CAN-DECON Process	PAM	3 1 5	01	02	02	12	07	99	SJC	potential
73	CAN-DECON Process	PAM	3 1 5	01	02	02	12	08	99	SJC	potential
74	Caustic Treatment (Detergents)	PAM	3 1 6	01	02	02	10	03	99	SJC	probable
74	Caustic Treatment (Detergents)	PAM	3 1 6	01	02	02	11	05	02	SJC	probable/probable
74	Caustic Treatment (Detergents)	PAM	3 1 6	01	02	02	11	06	02	SJC	probable/probable
74	Caustic Treatment (Detergents)	PAM	3 1 6	02	05	08	37	99	99	MAM	potential
74	Caustic Treatment (Detergents)	PAM	3 1 6	02	05	08	40	99	99	MAM	potential
75	Chelation	PAM	3 1 7	01	01	02	07	01	03	SJC	probable
75	Chelation	PAM	3 1 7	01	02	02	10	03	99	SJC	potential
75	Chelation	PAM	3 1 7	02	05	08	38	99	99	MAM	potential
75	Chelation	PAM	3 1 7	02	05	08	39	99	99	MAM	potential
75	Chelation	PAM	3 1 7	02	05	08	41	99	99	MAM	potential
75	Chelation	PAM	3 1 7	02	05	08	43	99	99	MAM	potential
75	Chelation	PAM	3 1 7	02	05	08	99	99	99	MAM	potential
76	Chemical Extraction	PAM	3 1 8	01	01	02	07	01	03	SJC	potential
76	Chemical Extraction	PAM	3 1 8	01	01	02	07	01	04	SJC	potential
76	Chemical Extraction	PAM	3 1 8	01	01	02	07	02	04	SJC	potential
76	Chemical Extraction	PAM	3 1 8	01	01	02	08	01	04	SJC	potential
76	Chemical Extraction	PAM	3 1 8	01	01	02	08	02	04	SJC	potential
76	Chemical Extraction	PAM	3 1 8	01	02	02	11	05	02	SJC	probable/
76	Chemical Extraction	PAM	3 1 8	02	05	08	37	99	99	MAM	potential
76	Chemical Extraction	PAM	3 1 8	02	05	08	38	99	99	MAM	potential
76	Chemical Extraction	PAM	3 1 8	02	05	08	39	99	99	MAM	potential
76	Chemical Extraction	PAM	3 1 8	02	05	08	40	99	99	MAM	potential
76	Chemical Extraction	PAM	3 1 8	02	05	08	41	99	99	MAM	potential
76	Chemical Extraction	PAM	3 1 8	02	05	08	43	99	99	MAM	potential
76	Chemical Extraction	PAM	3 1 8	02	05	08	99	99	99	MAM	potential
77	Chemical Foam/Gel	PAM	3 1 9	01	01	02	07	01	03	SJC	potential
77	Chemical Foam/Gel	PAM	3 1 9	01	01	02	07	02	03	SJC	potential
77	Chemical Foam/Gel	PAM	3 1 9	01	01	02	08	01	03	SJC	potential
77	Chemical Foam/Gel	PAM	3 1 9	01	01	02	08	02	03	SJC	potential
77	Chemical Foam/Gel	PAM	3 1 9	01	02	02	10	03	99	SJC	probable
77	Chemical Foam/Gel	PAM	3 1 9	02	05	08	37	99	99	MAM	potential
77	Chemical Foam/Gel	PAM	3 1 9	02	05	08	38	99	99	MAM	potential
77	Chemical Foam/Gel	PAM	3 1 9	02	05	08	39	99	99	MAM	potential
77	Chemical Foam/Gel	PAM	3 1 9	02	05	08	40	99	99	MAM	potential
77	Chemical Foam/Gel	PAM	3 1 9	02	05	08	41	99	99	MAM	potential
77	Chemical Foam/Gel	PAM	3 1 9	02	05	08	43	99	99	MAM	potential
77	Chemical Foam/Gel	PAM	3 1 9	02	05	08	99	99	99	MAM	potential
78	Electropolishing	PAM	3 1 11	01	02	02	09	99	99	SJC	potential
78	Electropolishing	PAM	3 1 11	01	02	02	10	04	99	SJC	potential
78	Electropolishing	PAM	3 1 11	02	05	08	37	99	99	MAM	potential
78	Electropolishing	PAM	3 1 11	02	05	08	38	99	99	MAM	potential
78	Electropolishing	PAM	3 1 11	02	05	08	39	99	99	MAM	potential
78	Electropolishing	PAM	3 1 11	02	05	08	40	99	99	MAM	potential
78	Electropolishing	PAM	3 1 11	02	05	08	41	99	99	MAM	potential
78	Electropolishing	PAM	3 1 11	02	05	08	43	99	99	MAM	potential
78	Electropolishing	PAM	3 1 11	02	05	08	99	99	99	MAM	potential
79	Hydrazine Nitrate	PAM	3 1 12	01	02	02	12	99	99	SJC	potential
79	Hydrazine Nitrate	PAM	3 1 12	02	05	08	39	99	99	MAM	potential
80	Hydrochloric Acid	PAM	3 1 13	01	02	02	12	07	99	SJC	potential
80	Hydrochloric Acid	PAM	3 1 13	01	02	02	12	08	99	SJC	potential

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80		Hydrochloric Acid	PAM	3.1.13	02	05	08	39	99	99	MAM	potential
80		Hydrochloric Acid	PAM	3.1.13	02	05	08	43	99	99	MAM	potential
80		Hydrochloric Acid	PAM	3.1.13	02	05	08	99	99	99	MAM	potential
81		Industrial Floor Scrubbers	PAM	3.1.14	01	01	02	07	01	03	SJC	probable
81		Industrial Floor Scrubbers	PAM	3.1.14	01	01	02	07	02	03	SJC	potential
82		In-Situ Electropolishing	PAM	3.1.15	01	02	02	10	03	99	SJC	potential
82		In-Situ Electropolishing	PAM	3.1.15	01	02	02	12	07	99	SJC	potential
83		Kerosene	PAM	3.1.16	02	05	08	39	99	99	MAM	potential
84		Low Oxidation State Metal Ion (LOMI) Process	PAM	3.1.17	01	02	02	12	07	99	SJC	potential
84		Low Oxidation State Metal Ion (LOMI) Process	PAM	3.1.17	01	02	02	12	08	99	SJC	potential
85		Manual Brushing/Wiping/Scrubbing	PAM	3.1.18	01	01	02	07	02	03	SJC	potential
85		Manual Brushing/Wiping/Scrubbing	PAM	3.1.18	01	01	02	08	02	03	SJC	potential
86		NaOH	PAM	3.1.19	01	02	02	12	99	99	SJC	potential
86		NaOH	PAM	3.1.19	02	05	08	37	99	99	MAM	potential
86		NaOH	PAM	3.1.19	02	05	08	40	99	99	MAM	potential
87		Nitric Acid	PAM	3.1.20	01	02	02	12	99	99	SJC	potential
87		Nitric Acid	PAM	3.1.20	02	05	08	37	99	99	MAM	potential
87		Nitric Acid	PAM	3.1.20	02	05	08	39	99	99	MAM	potential
87		Nitric Acid	PAM	3.1.20	02	05	08	40	99	99	MAM	potential
88		Organic Acids	PAM	3.1.21	01	02	02	10	03	99	SJC	potential
88		Organic Acids	PAM	3.1.21	01	02	02	11	05	02	SJC	potential/
88		Organic Acids	PAM	3.1.21	02	05	08	38	99	99	MAM	potential
88		Organic Acids	PAM	3.1.21	02	05	08	41	99	99	MAM	potential
88		Organic Acids	PAM	3.1.21	02	05	08	43	99	99	MAM	potential
88		Organic Acids	PAM	3.1.21	02	05	08	99	99	99	MAM	potential
89		Oxalate Peroxide	PAM	3.1.22	02	05	08	39	99	99	MAM	potential
90		Oxalic Acid/Citric Acid/CITROX Process	PAM	3.1.23	01	02	02	12	07	99	SJC	potential
91		Paint Remover	PAM	3.1.24	01	01	02	07	01	03	SJC	probable
91		Paint Remover	PAM	3.1.24	01	01	02	07	02	03	SJC	probable
91		Paint Remover	PAM	3.1.24	01	01	02	08	01	03	SJC	potential
91		Paint Remover	PAM	3.1.24	01	01	02	08	02	03	SJC	potential
91		Paint Remover	PAM	3.1.24	02	05	08	37	99	99	MAM	potential
91		Paint Remover	PAM	3.1.24	02	05	08	40	99	99	MAM	potential
91		Paint Remover	PAM	3.1.24	02	05	08	43	99	99	MAM	potential
91		Paint Remover	PAM	3.1.24	02	05	08	99	99	99	MAM	potential
92		Phosphoric Acid	PAM	3.1.25	01	02	02	12	08	99	SJC	potential
93		Strong Mineral Acids	PAM	3.1.27	01	02	02	10	03	99	SJC	potential
93		Strong Mineral Acids	PAM	3.1.27	01	02	02	11	05	02	SJC	potential/
93		Strong Mineral Acids	PAM	3.1.27	01	02	02	12	99	99	SJC	potential
93		Strong Mineral Acids	PAM	3.1.27	02	05	08	37	99	99	MAM	potential
93		Strong Mineral Acids	PAM	3.1.27	02	05	08	38	99	99	MAM	potential
93		Strong Mineral Acids	PAM	3.1.27	02	05	08	40	99	99	MAM	potential
93		Strong Mineral Acids	PAM	3.1.27	02	05	08	41	99	99	MAM	potential
94		Sulfamic Acid	PAM	3.1.28	01	02	02	12	08	99	SJC	potential
94		Sulfamic Acid	PAM	3.1.28	02	05	08	37	99	99	MAM	potential
94		Sulfamic Acid	PAM	3.1.28	02	05	08	38	99	99	MAM	potential
94		Sulfamic Acid	PAM	3.1.28	02	05	08	39	99	99	MAM	potential
94		Sulfamic Acid	PAM	3.1.28	02	05	08	40	99	99	MAM	potential
94		Sulfamic Acid	PAM	3.1.28	02	05	08	41	99	99	MAM	potential
94		Sulfamic Acid	PAM	3.1.28	02	05	08	43	99	99	MAM	potential
94		Sulfamic Acid	PAM	3.1.28	02	05	08	99	99	99	MAM	potential
95		Fixative/Stabilizer Coatings	PAM	3.2.1	01	01	02	07	01	03	SJC	probable
95		Fixative/Stabilizer Coatings	PAM	3.2.1	01	01	02	07	02	03	SJC	potential
95		Fixative/Stabilizer Coatings	PAM	3.2.1	01	01	02	08	01	03	SJC	potential
95		Fixative/Stabilizer Coatings	PAM	3.2.1	01	01	02	08	02	03	SJC	potential
96		Strippable (and self-strippable) Coatings	PAM	3.2.2	01	01	02	07	01	03	SJC	potential
96		Strippable (and self-strippable) Coatings	PAM	3.2.2	01	01	02	07	02	03	SJC	potential
96		Strippable (and self-strippable) Coatings	PAM	3.2.2	01	01	02	08	01	03	SJC	potential
96		Strippable (and self-strippable) Coatings	PAM	3.2.2	01	01	02	08	02	03	SJC	potential
97		Laser Etching/Ablation	PAM	3.3.1	01	01	02	07	01	03	SJC	potential

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98	Automated Grinding	PAM	3 4 1	01	02	02	11	05	02	SJC	probable/preferred
98	Automated Grinding	PAM	3 4 1	01	02	02	11	06	02	SJC	preferred/preferred
99	Drill and Spall	PAM	3 4 2	01	01	02	08	02	03	SJC	potential
99	Drill and Spall	PAM	3 4 2	01	01	02	08	02	04	SJC	potential
100	Expansive Grout	PAM	3 4 3	01	01	02	07	01	03	SJC	potential
100	Expansive Grout	PAM	3 4 3	01	01	02	07	01	04	SJC	potential
100	Expansive Grout	PAM	3 4 3	01	01	02	07	02	03	SJC	potential
100	Expansive Grout	PAM	3 4 3	01	01	02	07	02	04	SJC	potential
100	Expansive Grout	PAM	3 4 3	01	01	03	14	99	99	SJC	potential
100	Expansive Grout	PAM	3 4 3	01	01	03	15	99	99	SJC	potential
100	Expansive Grout	PAM	3 4 3	01	01	04	23	99	99	SJC	probable
100	Expansive Grout	PAM	3 4 3	01	01	04	24	99	99	SJC	probable
100	Expansive Grout	PAM	3 4 3	01	01	04	25	99	99	SJC	probable
100	Expansive Grout	PAM	3 4 3	01	01	04	26	99	99	SJC	probable
101	Hand Grinding/Honing	PAM	3 4 5	01	01	02	07	01	03	SJC	potential
102	Paving Breaker/Chipping Hammer	PAM	3 4 6	01	01	02	07	01	03	SJC	potential
102	Paving Breaker/Chipping Hammer	PAM	3 4 6	01	01	02	07	01	04	SJC	potential
102	Paving Breaker/Chipping Hammer	PAM	3 4 6	01	01	02	07	02	03	SJC	probable
102	Paving Breaker/Chipping Hammer	PAM	3 4 6	01	01	02	07	02	04	SJC	probable
103	Piston Scabbler	PAM	3 4 7	01	01	02	07	01	03	SJC	probable
103	Piston Scabbler	PAM	3 4 7	01	01	02	07	01	04	SJC	probable
103	Piston Scabbler	PAM	3 4 7	01	01	02	07	02	03	SJC	potential
103	Piston Scabbler	PAM	3 4 7	01	01	02	07	02	04	SJC	potential
104	Planing	PAM	3 4 8	01	02	02	09	99	99	SJC	probable
105	Rotating Brushes/Honing	PAM	3 4 9	01	02	02	12	07	99	SJC	probable
105	Rotating Brushes/Honing	PAM	3 4 9	01	02	02	12	08	99	SJC	potential
105	Rotating Brushes/Honing	PAM	3 4 9	01	02	02	12	99	99	SJC	probable
106	Shrouded, Needle Scalar	PAM	3 4 10	01	01	02	07	02	03	SJC	potential
106	Shrouded, Needle Scalar	PAM	3 4 10	01	01	02	08	01	03	SJC	potential
106	Shrouded, Needle Scalar	PAM	3 4 10	01	01	02	08	02	03	SJC	probable
107	Turbulator	PAM	3 4 11	01	02	02	10	04	99	SJC	potential
108	Ultrasonic Vibration	PAM	3 4 12	01	02	02	10	04	99	SJC	potential
109	Vibratory Finishing	PAM	3 4 13	01	02	02	10	04	99	SJC	potential
110	Smelt Purification	PAM	3 5 1	01	02	02	10	03	99	SJC	potential
110	Smelt Purification	PAM	3 5 1	01	02	02	10	04	99	SJC	potential
111	Centrifuge Cryogenic CO2 Pellet Blasting	PAM	3 6 1	01	01	02	07	01	03	SJC	potential
111	Centrifuge Cryogenic CO2 Pellet Blasting	PAM	3 6 1	01	01	02	07	02	03	SJC	potential
111	Centrifuge Cryogenic CO2 Pellet Blasting	PAM	3 6 1	01	02	02	09	99	99	SJC	probable
111	Centrifuge Cryogenic CO2 Pellet Blasting	PAM	3 6 1	01	02	02	10	03	99	SJC	potential
111	Centrifuge Cryogenic CO2 Pellet Blasting	PAM	3 6 1	01	02	02	10	04	99	SJC	probable
111	Centrifuge Cryogenic CO2 Pellet Blasting	PAM	3 6 1	01	02	02	11	05	02	SJC	probable/potential
111	Centrifuge Cryogenic CO2 Pellet Blasting	PAM	3 6 1	01	02	02	11	06	02	SJC	probable/potential
112	Dry Vacuum Cleaning	PAM	3 6 3	01	01	02	07	01	03	SJC	potential
113	Foam/Sponge Blasting	PAM	3 6 4	01	02	02	10	03	99	SJC	potential
114	Grit Blasting	PAM	3 6 5	01	01	02	07	01	03	SJC	probable
114	Grit Blasting	PAM	3 6 5	01	01	02	08	01	03	SJC	potential
114	Grit Blasting	PAM	3 6 5	01	01	02	08	02	03	SJC	potential
114	Grit Blasting	PAM	3 6 5	01	02	02	09	99	99	SJC	probable
114	Grit Blasting	PAM	3 6 5	01	02	02	10	03	99	SJC	probable
114	Grit Blasting	PAM	3 6 5	01	02	02	11	04	99	SJC	probable
114	Grit Blasting	PAM	3 6 5	01	02	02	11	05	02	SJC	probable/potential
114	Grit Blasting	PAM	3 6 5	01	02	02	11	06	02	SJC	potential/potential
114	Grit Blasting	PAM	3 6 5	01	02	02	12	07	99	SJC	probable
114	Grit Blasting	PAM	3 6 5	01	02	02	12	08	99	SJC	potential
114	Grit Blasting	PAM	3 6 5	01	02	02	12	99	99	SJC	probable
114	Grit Blasting	PAM	3 6 5	02	05	08	43	99	99	MAM	probable
114	Grit Blasting	PAM	3 6 5	02	05	08	99	99	99	MAM	potential
115	High Pressure Freon Cleaning	PAM	3 6 6	01	01	02	07	01	03	SJC	potential
115	High Pressure Freon Cleaning	PAM	3 6 6	01	01	02	07	02	03	SJC	probable
115	High Pressure Freon Cleaning	PAM	3 6 6	01	01	02	08	01	03	SJC	probable

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115		High Pressure Freon Cleaning	PAM	3 6 6	01	01	02	08	02	03	SJC	probable
116		Hydroblasting	PAM	3 6 7	01	01	02	07	01	03	SJC	probable
116		Hydroblasting	PAM	3 6 7	01	01	02	07	02	03	SJC	probable
116		Hydroblasting	PAM	3 6 7	01	01	02	08	01	03	SJC	probable
116		Hydroblasting	PAM	3 6 7	01	01	02	08	02	03	SJC	probable
116		Hydroblasting	PAM	3 6 7	01	02	02	09	99	99	SJC	probable
116		Hydroblasting	PAM	3 6 7	01	02	02	10	03	99	SJC	potential
116		Hydroblasting	PAM	3 6 7	01	02	02	11	05	02	SJC	probable/
116		Hydroblasting	PAM	3 6 7	02	05	08	43	99	99	MAM	probable
116		Hydroblasting	PAM	3 6 7	02	05	08	99	99	99	MAM	potential
116		Hydroblasting	PAM	3 6 8	01	02	02	12	07	99	SJC	potential
117		Hydroblasting - flexible lance	PAM	3 6 8	01	02	02	12	08	99	SJC	probable
117		Hydroblasting - flexible lance	PAM	3 6 8	01	02	02	12	99	99	SJC	potential
117		Hydroblasting - flexible lance	PAM	3 6 8	02	05	08	43	99	99	MAM	probable
117		Hydroblasting - flexible lance	PAM	3 6 8	02	05	08	99	99	99	MAM	potential
117		Hydroblasting - flexible lance	PAM	3 6 9	01	01	02	07	01	03	SJC	potential
118		Ice Blasting	PAM	3 6 9	01	01	02	07	02	03	SJC	potential
118		Ice Blasting	PAM	3 6 9	01	01	02	08	01	03	SJC	potential
118		Ice Blasting	PAM	3 6 9	01	01	02	08	02	03	SJC	potential
118		Ice Blasting	PAM	3 6 9	01	02	02	10	03	99	SJC	potential
118		Ice Blasting	PAM	3 6 9	01	02	02	11	05	02	SJC	potential/potential
118		Ice Blasting	PAM	3 6 9	01	02	02	11	06	02	SJC	potential/potential
118		Ice Blasting	PAM	3 6 9	02	05	08	43	99	99	MAM	probable
118		Ice Blasting	PAM	3 6 9	02	05	08	99	99	99	MAM	potential
119		Shot Blast Scabbling	PAM	3 6 10	01	01	02	07	01	03	SJC	probable
119		Shot Blast Scabbling	PAM	3 6 10	01	02	02	11	05	02	SJC	probable/
119		Shot Blast Scabbling	PAM	3 6 10	02	05	08	43	99	99	MAM	probable
119		Shot Blast Scabbling	PAM	3 6 10	02	05	08	99	99	99	MAM	potential
120		Soda Blasting	PAM	3 6 11	01	01	02	07	02	03	SJC	potential
120		Soda Blasting	PAM	3 6 11	01	01	02	08	01	03	SJC	potential
120		Soda Blasting	PAM	3 6 11	01	01	02	08	02	03	SJC	potential
120		Soda Blasting	PAM	3 6 11	02	05	08	43	99	99	MAM	probable
120		Soda Blasting	PAM	3 6 11	02	05	08	99	99	99	MAM	potential
121		Steam Vacuum	PAM	3 6 12	01	01	02	07	01	03	SJC	potential
121		Steam Vacuum	PAM	3 6 12	01	01	02	07	02	03	SJC	potential
121		Steam Vacuum	PAM	3 6 12	01	01	02	08	01	03	SJC	potential
121		Steam Vacuum	PAM	3 6 12	01	01	02	08	02	03	SJC	potential
121		Steam Vacuum	PAM	3 6 12	02	05	08	43	99	99	MAM	probable
121		Steam Vacuum	PAM	3 6 12	02	05	08	99	99	99	MAM	potential
122		Hot Water Flushing	PAM	3 7 1	02	05	08	43	99	99	MAM	probable
122		Hot Water Flushing	PAM	3 7 1	02	05	08	99	99	99	MAM	potential
123		Rotating Cavitation Water Jet	PAM	3 7 2	01	02	02	12	07	99	SJC	probable
123		Rotating Cavitation Water Jet	PAM	3 7 2	01	02	02	12	08	99	SJC	probable
123		Rotating Cavitation Water Jet	PAM	3 7 2	01	02	02	12	99	99	SJC	probable
123		Rotating Cavitation Water Jet	PAM	3 7 2	02	05	08	43	99	99	MAM	probable
123		Rotating Cavitation Water Jet	PAM	3 7 2	02	05	08	99	99	99	MAM	potential
124		Steam Cleaning	PAM	3 7 3	01	01	02	07	02	03	SJC	potential
124		Steam Cleaning	PAM	3 7 3	01	01	02	08	01	03	SJC	potential
124		Steam Cleaning	PAM	3 7 3	01	01	02	08	02	03	SJC	potential
124		Steam Cleaning	PAM	3 7 3	01	02	02	10	03	99	SJC	potential
124		Steam Cleaning	PAM	3 7 3	02	05	08	43	99	99	MAM	probable
124		Steam Cleaning	PAM	3 7 3	02	05	08	99	99	99	MAM	potential
125		Superheated Water	PAM	3 7 4	01	01	02	07	01	03	SJC	potential
125		Superheated Water	PAM	3 7 4	01	01	02	07	02	03	SJC	potential
125		Superheated Water	PAM	3 7 4	01	01	02	08	01	03	SJC	potential
125		Superheated Water	PAM	3 7 4	01	01	02	08	02	03	SJC	potential
125		Superheated Water	PAM	3 7 4	02	05	08	43	99	99	MAM	probable
125		Superheated Water	PAM	3 7 4	02	05	08	99	99	99	MAM	potential
126		Ultra-High Pressure (UHP) Water Jet	PAM	3 7 5	01	01	02	07	01	04	SJC	potential
126		Ultra-High Pressure (UHP) Water Jet	PAM	3 7 5	01	01	02	07	02	04	SJC	potential

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126	Ultra-High Pressure (UHP) Water Jet	PAM	3 7 5	01	01	02	08	01	04	SJC	potential
126	Ultra-High Pressure (UHP) Water Jet	PAM	3 7 5	01	01	02	08	02	04	SJC	potential
126	Ultra-High Pressure (UHP) Water Jet	PAM	3 7 5	01	02	02	09	99	99	SJC	probable
126	Ultra-High Pressure (UHP) Water Jet	PAM	3 7 5	01	02	02	10	03	99	SJC	potential
126	Ultra-High Pressure (UHP) Water Jet	PAM	3 7 5	01	02	02	11	05	02	SJC	probable/potential
126	Ultra-High Pressure (UHP) Water Jet	PAM	3 7 5	01	02	02	11	06	02	SJC	potential/potential
126	Ultra-High Pressure (UHP) Water Jet	PAM	3 7 5	02	05	08	43	99	99	MAM	probable
126	Ultra-High Pressure (UHP) Water Jet	PAM	3 7 5	02	05	08	99	99	99	MAM	potential
127	Abrasive Cutter	PAM	3 8 1	01	02	03	16	10	99	SJC	potential
127	Abrasive Cutter	PAM	3 8 1	01	02	03	17	10	99	SJC	preferred
127	Abrasive Cutter	PAM	3 8 1	01	02	03	18	10	99	SJC	potential
128	Circular Cutting Saw	PAM	3 8 2	01	02	03	17	10	99	SJC	potential
128	Circular Cutting Saw	PAM	3 8 2	01	02	03	18	10	99	SJC	probable
128	Circular Cutting Saw	PAM	3 8 2	01	02	03	19	10	99	SJC	potential
128	Circular Cutting Saw	PAM	3 8 2	01	01	03	99	99	99	MAM	
129	Diamond Wire	PAM	3 13 2	01	01	04	22	99	99	SJC	potential
129	Diamond Wire	PAM	3 13 2	01	01	04	23	99	99	SJC	probable
129	Diamond Wire	PAM	3 13 2	01	01	04	24	99	99	SJC	probable
129	Diamond Wire	PAM	3 13 2	01	02	04	27	99	99	SJC	potential
129	Diamond Wire	PAM	3 13 2	01	02	04	28	99	99	SJC	potential
129	Diamond Wire	PAM	3 13 2	01	01	03	99	99	99	MAM	
130	Mechanical Saw	PAM	3 8 4	01	02	03	17	10	99	SJC	potential
130	Mechanical Saw	PAM	3 8 4	01	02	03	18	10	99	SJC	probable
130	Mechanical Saw	PAM	3 8 4	01	02	03	19	10	99	SJC	potential
131	Mobile Shears	PAM	3 8 5	01	02	03	16	10	99	SJC	probable
131	Mobile Shears	PAM	3 8 5	01	02	03	17	10	99	SJC	potential
131	Mobile Shears	PAM	3 8 5	01	02	03	18	10	99	SJC	probable
131	Mobile Shears	PAM	3 8 5	01	02	03	19	10	99	SJC	potential
131	Mobile Shears	PAM	3 8 5	01	01	04	22	99	99	SJC	potential
131	Mobile Shears	PAM	3 8 5	01	01	04	23	99	99	SJC	probable
131	Mobile Shears	PAM	3 8 5	01	01	04	24	99	99	SJC	potential
131	Mobile Shears	PAM	3 8 5	01	01	04	26	99	99	SJC	potential
131	Mobile Shears	PAM	3 8 5	01	02	04	28	99	99	SJC	probable
131	Mobile Shears	PAM	3 8 5	01	03	04	27	99	99	SJC	potential
131	Mobile Shears	PAM	3 8 5	01	03	04	28	99	99	SJC	probable
132	Nibbler/Shear	PAM	3 8 6	01	02	03	16	10	99	SJC	probable
132	Nibbler/Shear	PAM	3 8 6	01	02	03	17	10	99	SJC	probable
132	Nibbler/Shear	PAM	3 8 6	01	02	03	18	10	99	SJC	probable
132	Nibbler/Shear	PAM	3 8 6	01	02	03	19	10	99	SJC	potential
133	Wall & Floor Saws	PAM	3 8 7	01	01	03	14	99	99	SJC	potential
133	Wall & Floor Saws	PAM	3 8 7	01	01	03	15	99	99	SJC	probable
133	Wall & Floor Saws	PAM	3 8 7	01	01	04	23	99	99	SJC	potential
133	Wall & Floor Saws	PAM	3 8 7	01	01	04	24	99	99	SJC	potential
133	Wall & Floor Saws	PAM	3 8 7	01	03	04	28	99	99	SJC	probable
134	Backhoe Mounted Ram	PAM	3 9 1	01	01	03	13	99	99	SJC	probable
134	Backhoe Mounted Ram	PAM	3 9 1	01	01	03	14	99	99	SJC	preferred
134	Backhoe Mounted Ram	PAM	3 9 1	01	01	03	15	99	99	SJC	probable
134	Backhoe Mounted Ram	PAM	3 9 1	01	01	04	22	99	99	SJC	probable
134	Backhoe Mounted Ram	PAM	3 9 1	01	01	04	23	99	99	SJC	probable
134	Backhoe Mounted Ram	PAM	3 9 1	01	01	04	24	99	99	SJC	preferred
134	Backhoe Mounted Ram	PAM	3 9 1	01	01	04	25	99	99	SJC	potential
134	Backhoe Mounted Ram	PAM	3 9 1	01	01	04	26	99	99	SJC	probable
134	Backhoe Mounted Ram	PAM	3 9 1	01	02	04	27	99	99	SJC	potential
134	Backhoe Mounted Ram	PAM	3 9 1	01	02	04	28	99	99	SJC	potential
134	Backhoe Mounted Ram	PAM	3 9 1	01	03	04	27	99	99	SJC	probable
134	Backhoe Mounted Ram	PAM	3 9 1	01	03	04	28	99	99	SJC	probable
135	Chipping Hammer	PAM	3 9 3	01	01	03	15	99	99	SJC	potential
136	Controlled Blasting	PAM	3 9 4	01	01	03	14	99	99	SJC	potential
136	Controlled Blasting	PAM	3 9 4	01	01	04	22	99	99	SJC	potential
136	Controlled Blasting	PAM	3 9 4	01	01	04	23	99	99	SJC	potential

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136	Controlled Blasting	PAM	3.9.4	01	01	04	24	99	99	SJC	potential
136	Controlled Blasting	PAM	3.9.4	01	01	04	25	99	99	SJC	potential
136	Controlled Blasting	PAM	3.9.4	01	01	04	28	99	99	SJC	potential
137	Rock Splitter	PAM	3.9.7	01	01	04	22	99	99	SJC	potential
137	Rock Splitter	PAM	3.9.7	01	01	04	23	99	99	SJC	potential
137	Rock Splitter	PAM	3.9.7	01	01	04	24	99	99	SJC	potential
137	Rock Splitter	PAM	3.9.7	01	01	04	25	99	99	SJC	potential
137	Rock Splitter	PAM	3.9.7	01	01	04	25	99	99	SJC	potential
138	Universal Processor	PAM	3.9.8	01	01	03	14	99	99	SJC	potential
138	Universal Processor	PAM	3.9.8	01	01	03	15	99	99	SJC	potential
139	Wrecking Ball/Slab	PAM	3.9.9	01	01	03	13	99	99	SJC	potential
139	Wrecking Ball/Slab	PAM	3.9.9	01	01	03	14	99	99	SJC	potential
139	Wrecking Ball/Slab	PAM	3.9.9	01	01	03	15	99	99	SJC	probable
139	Wrecking Ball/Slab	PAM	3.9.9	01	01	04	23	99	99	SJC	probable
139	Wrecking Ball/Slab	PAM	3.9.9	01	01	04	24	99	99	SJC	probable
139	Wrecking Ball/Slab	PAM	3.9.9	01	01	04	25	99	99	SJC	potential
139	Wrecking Ball/Slab	PAM	3.9.9	01	01	04	28	99	99	SJC	preferred
139	Wrecking Ball/Slab	PAM	3.9.9	01	02	04	27	99	99	SJC	potential
140	Abrasive Water Jet Cutting Technology	PAM	3.10.1	01	02	03	17	10	99	SJC	probable
141	Arc Saw	PAM	3.10.2	01	02	03	17	09	99	SJC	potential
141	Arc Saw	PAM	3.10.2	01	02	03	18	09	99	SJC	probable
141	Arc Saw	PAM	3.10.2	01	02	03	19	09	99	SJC	probable
142	Explosive Cutting	PAM	3.10.3	01	01	03	14	99	99	SJC	potential
142	Explosive Cutting	PAM	3.10.3	01	02	04	27	99	99	SJC	potential
142	Explosive Cutting	PAM	3.10.3	01	02	04	28	99	99	SJC	potential
143	Oxyacetylene Cutting	PAM	3.10.5	01	02	03	18	09	99	SJC	probable
143	Oxyacetylene Cutting	PAM	3.10.5	01	02	03	17	09	99	SJC	probable
143	Oxyacetylene Cutting	PAM	3.10.5	01	02	03	18	09	99	SJC	probable
143	Oxyacetylene Cutting	PAM	3.10.5	01	02	03	19	09	99	SJC	probable
144	Plasma Arc	PAM	3.10.6	01	02	03	18	09	99	SJC	potential
144	Plasma Arc	PAM	3.10.6	01	02	03	17	09	99	SJC	probable
144	Plasma Arc	PAM	3.10.6	01	02	03	18	09	99	SJC	potential
144	Plasma Arc	PAM	3.10.6	01	02	03	19	09	99	SJC	probable
145	Thermite Lance	PAM	3.10.7	01	02	03	17	09	99	SJC	potential
145	Thermite Lance	PAM	3.10.7	01	02	03	19	09	99	SJC	probable
146	Backhoe Mounted Pulverizer	PAM	3.11.1	01	01	04	22	99	99	SJC	potential
146	Backhoe Mounted Pulverizer	PAM	3.11.1	01	01	04	23	99	99	SJC	potential
146	Backhoe Mounted Pulverizer	PAM	3.11.1	01	01	04	24	99	99	SJC	potential
146	Backhoe Mounted Pulverizer	PAM	3.11.1	01	01	04	25	99	99	SJC	potential
146	Backhoe Mounted Pulverizer	PAM	3.11.1	01	01	04	26	99	99	SJC	probable
147	Bulldozer	PAM	3.11.4	01	02	04	27	99	99	SJC	probable
147	Bulldozer	PAM	3.11.4	01	02	04	28	99	99	SJC	probable
147	Bulldozer	PAM	3.11.4	01	03	04	27	99	99	SJC	probable
147	Bulldozer	PAM	3.11.4	01	03	04	28	99	99	SJC	probable
148	Cable Suspended Excavator Attachments	PAM	3.11.5	01	02	04	27	99	99	SJC	probable
148	Cable Suspended Excavator Attachments	PAM	3.11.5	01	02	04	28	99	99	SJC	probable
148	Cable Suspended Excavator Attachments	PAM	3.11.5	01	03	04	28	99	99	SJC	probable
149	Jackhammer	PAM	3.12.1	01	01	04	26	99	99	SJC	potential
150	Grapple	PAM	3.13.5	01	02	04	27	99	99	SJC	preferred
150	Grapple	PAM	3.13.5	01	02	04	28	99	99	SJC	preferred
150	Grapple	PAM	3.13.5	01	03	04	27	99	99	SJC	preferred
150	Grapple	PAM	3.13.5	01	03	04	28	99	99	SJC	preferred
151	Inorganic based encapsulation	PAM	3.14.1	02	05	08	37	99	99	MAM	probable
151	Inorganic based encapsulation	PAM	3.14.1	02	05	08	38	99	99	MAM	probable
151	Inorganic based encapsulation	PAM	3.14.1	02	05	08	39	99	99	MAM	probable
151	Inorganic based encapsulation	PAM	3.14.1	02	05	08	40	99	99	MAM	probable
151	Inorganic based encapsulation	PAM	3.14.1	02	05	08	41	99	99	MAM	probable
151	Inorganic based encapsulation	PAM	3.14.1	02	05	08	42	99	99	MAM	potential
151	Inorganic based encapsulation	PAM	3.14.1	02	06	08	39	99	99	MAM	probable
151	Inorganic based encapsulation	PAM	3.14.1	02	07	08	39	99	99	MAM	potential
152	Macroencapsulation	PAM	3.14.2	02	05	08	43	99	99	MAM	potential

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153	Organic based encapsulation	PAM	3 14 3	02	05	08	37	99	99	MAM	potential
153	Organic based encapsulation	PAM	3 14 3	02	05	08	38	99	99	MAM	potential
153	Organic based encapsulation	PAM	3 14 3	02	05	08	39	99	99	MAM	potential
153	Organic based encapsulation	PAM	3 14 3	02	05	08	40	99	99	MAM	potential
153	Organic based encapsulation	PAM	3 14 3	02	05	08	41	99	99	MAM	potential
153	Organic based encapsulation	PAM	3 14 3	02	06	08	39	99	99	MAM	potential
153	Organic based encapsulation	PAM	3 14 3	02	07	08	39	99	99	MAM	potential
154	Retort/Amalgamation	PAM	3 14 4	02	05	08	38	99	99	MAM	potential
154	Retort/Amalgamation	PAM	3 14 4	02	05	08	41	99	99	MAM	potential
155	Brickmaking	PAM	3 15 1	02	05	08	38	99	99	MAM	potential
155	Brickmaking	PAM	3 15 1	02	05	08	39	99	99	MAM	potential
155	Brickmaking	PAM	3 15 1	02	05	08	41	99	99	MAM	potential
155	Brickmaking	PAM	3 15 1	02	06	08	39	99	99	MAM	potential
156	Calcination	PAM	3 15 2	02	05	08	37	99	99	MAM	potential
156	Calcination	PAM	3 15 2	02	05	08	39	99	99	MAM	potential
156	Calcination	PAM	3 15 2	02	05	08	40	99	99	MAM	potential
156	Calcination	PAM	3 15 2	02	06	08	39	99	99	MAM	potential
156	Calcination	PAM	3 15 2	02	06	08	39	99	99	MAM	potential
157	Open Burning/Open Detonation	PAM	3 15 3	02	05	08	38	99	99	MAM	probable
157	Open Burning/Open Detonation	PAM	3 15 3	02	05	08	41	99	99	MAM	probable
157	Open Burning/Open Detonation	PAM	3 15 3	02	05	08	42	99	99	MAM	potential
158	Drying/Dewatering	PAM	3 15 4	02	05	08	37	99	99	MAM	probable
158	Drying/Dewatering	PAM	3 15 4	02	05	08	38	99	99	MAM	probable
158	Drying/Dewatering	PAM	3 15 4	02	05	08	39	99	99	MAM	probable
158	Drying/Dewatering	PAM	3 15 4	02	05	08	40	99	99	MAM	probable
158	Drying/Dewatering	PAM	3 15 4	02	05	08	41	99	99	MAM	probable
158	Drying/Dewatering	PAM	3 15 4	02	06	08	39	99	99	MAM	probable
159	High Temperature Thermal Desorption	PAM	3 15 5	02	05	08	37	99	99	MAM	potential
159	High Temperature Thermal Desorption	PAM	3 15 5	02	05	08	38	99	99	MAM	potential
159	High Temperature Thermal Desorption	PAM	3 15 5	02	05	08	40	99	99	MAM	potential
159	High Temperature Thermal Desorption	PAM	3 15 5	02	05	08	41	99	99	MAM	potential
160	Incineration	PAM	3 15 6	02	05	08	37	99	99	MAM	potential
160	Incineration	PAM	3 15 6	02	05	08	38	99	99	MAM	potential
160	Incineration	PAM	3 15 6	02	05	08	40	99	99	MAM	potential
160	Incineration	PAM	3 15 6	02	05	08	41	99	99	MAM	potential
161	Low temperature thermal desorption	PAM	3 15 7	02	05	08	37	99	99	MAM	probable
161	Low temperature thermal desorption	PAM	3 15 7	02	05	08	38	99	99	MAM	potential
161	Low temperature thermal desorption	PAM	3 15 7	02	05	08	40	99	99	MAM	probable
161	Low temperature thermal desorption	PAM	3 15 7	02	05	08	41	99	99	MAM	potential
162	Pyrolysis	PAM	3 15 9	02	05	08	40	99	99	MAM	potential
163	Steam reforming	PAM	3 15 10	02	05	08	37	99	99	MAM	potential
163	Steam reforming	PAM	3 15 10	02	05	08	40	99	99	MAM	potential
164	Vitrification	PAM	3 15 11	02	05	08	37	99	99	MAM	potential
164	Vitrification	PAM	3 15 11	02	05	08	38	99	99	MAM	potential
164	Vitrification	PAM	3 15 11	02	05	08	39	99	99	MAM	potential
164	Vitrification	PAM	3 15 11	02	05	08	40	99	99	MAM	potential
164	Vitrification	PAM	3 15 11	02	05	08	41	99	99	MAM	potential
164	Vitrification	PAM	3 15 11	02	06	08	39	99	99	MAM	potential
165	Advanced adsorbents	PAM	3 16 2	02	07	08	39	99	99	MAM	potential
166	Chemical Reduction/Oxidation	PAM	3 16 8	02	05	08	38	99	99	MAM	probable
166	Chemical Reduction/Oxidation	PAM	3 16 8	02	05	08	38	99	99	MAM	potential
166	Chemical Reduction/Oxidation	PAM	3 16 8	02	05	08	38	99	99	MAM	potential
166	Chemical Reduction/Oxidation	PAM	3 16 8	02	05	08	38	99	99	MAM	probable
166	Chemical Reduction/Oxidation	PAM	3 16 8	02	05	08	38	99	99	MAM	potential
166	Chemical Reduction/Oxidation	PAM	3 16 8	02	05	08	38	99	99	MAM	potential
166	Chemical Reduction/Oxidation	PAM	3 16 8	02	05	08	41	99	99	MAM	probable
166	Chemical Reduction/Oxidation	PAM	3 16 8	02	05	08	41	99	99	MAM	potential
166	Chemical Reduction/Oxidation	PAM	3 16 8	02	05	08	41	99	99	MAM	potential
166	Chemical Reduction/Oxidation	PAM	3 16 8	02	05	08	41	99	99	MAM	probable
166	Chemical Reduction/Oxidation	PAM	3 16 8	02	05	08	41	99	99	MAM	potential

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166	Chemical Reduction/Oxidation	PAM	3.16.8	02	05	08	41	99	99	MAM	potential
167	CO2 Blasting	PAM	3.16.9	02	05	08	43	99	99	MAM	probable
167	CO2 Blasting	PAM	3.16.9	02	05	08	99	99	99	MAM	probable
168	Dehalogenation	PAM	3.16.13	02	05	08	37	99	99	MAM	potential
168	Dehalogenation	PAM	3.16.13	02	05	08	40	99	99	MAM	potential
169	Electrochemical	PAM	3.16.15	02	05	08	37	99	99	MAM	potential
169	Electrochemical	PAM	3.16.15	02	05	08	38	99	99	MAM	potential
169	Electrochemical	PAM	3.16.15	02	05	08	40	99	99	MAM	potential
169	Electrochemical	PAM	3.16.15	02	05	08	41	99	99	MAM	potential
169	Electrochemical	PAM	3.16.15	02	05	08	43	99	99	MAM	potential
169	Electrochemical	PAM	3.16.15	02	05	08	99	99	99	MAM	potential
170	Ion Exchange	PAM	3.16.21	02	07	08	39	99	99	MAM	potential
171	Mechanical separation	PAM	3.16.22	02	05	08	42	99	99	MAM	probable
171	Mechanical separation	PAM	3.16.22	02	05	08	99	99	99	MAM	potential
172	Reverse Osmosis	PAM	3.16.23	02	07	08	39	99	99	MAM	potential
173	Precipitation	PAM	3.16.24	02	07	08	39	99	99	MAM	probable
174	Filtration	PAM	3.16.25	02	07	08	39	99	99	MAM	probable
175	Solar Evaporation	PAM	3.16.27	02	07	08	39	99	99	MAM	probable
176	Volume Reduction/Compaction	PAM	3.16.31	02	05	08	42	99	99	MAM	probable
176	Volume Reduction/Compaction	PAM	3.16.31	02	05	08	99	99	99	MAM	probable
177	Landfills (RCRA, Radioactive, TSCA, Mixed	PAM	3.17.3	02	05	08	37	99	99	MAM	potential
177	Landfills (RCRA, Radioactive, TSCA, Mixed	PAM	3.17.3	02	05	08	38	99	99	MAM	potential
177	Landfills (RCRA, Radioactive, TSCA, Mixed	PAM	3.17.3	02	05	08	39	99	99	MAM	potential
178	3" Trash Pump- Wacker PT 3A	Phoenix		02	07	08	99	99	99	SJC	
179	40K Floor Machine	Phoenix		01	01	02	07	99	99	SJC	
179	40K Floor Machine	Phoenix		01	02	02	11	05	99	SJC	
180	Abrasive Blaster- MP 1	Phoenix		01	01	02	07	01	03	SJC	
180	Abrasive Blaster- MP 1	Phoenix		01	01	02	08	01	03	SJC	
180	Abrasive Blaster- MP 1	Phoenix		01	01	02	08	02	03	SJC	
180	Abrasive Blaster- MP 1	Phoenix		01	02	02	09	99	99	SJC	
180	Abrasive Blaster- MP 1	Phoenix		01	02	02	10	03	99	SJC	
180	Abrasive Blaster- MP 1	Phoenix		01	02	02	10	04	99	SJC	
180	Abrasive Blaster- MP 1	Phoenix		01	02	02	11	05	02	SJC	
180	Abrasive Blaster- MP 1	Phoenix		01	02	02	11	06	02	SJC	
181	Abrasive Blaster- MP 3	Phoenix		01	01	02	07	01	03	SJC	
181	Abrasive Blaster- MP 3	Phoenix		01	01	02	08	01	03	SJC	
181	Abrasive Blaster- MP 3	Phoenix		01	01	02	08	02	03	SJC	
181	Abrasive Blaster- MP 3	Phoenix		01	02	02	09	99	99	SJC	
181	Abrasive Blaster- MP 3	Phoenix		01	02	02	10	03	99	SJC	
181	Abrasive Blaster- MP 3	Phoenix		01	02	02	10	04	99	SJC	
181	Abrasive Blaster- MP 3	Phoenix		01	02	02	11	05	02	SJC	
181	Abrasive Blaster- MP 3	Phoenix		01	02	02	11	06	02	SJC	
182	Abrasive Blaster- MPC	Phoenix		01	01	02	07	01	03	SJC	
182	Abrasive Blaster- MPC	Phoenix		01	01	02	08	01	03	SJC	
182	Abrasive Blaster- MPC	Phoenix		01	01	02	08	02	03	SJC	
182	Abrasive Blaster- MPC	Phoenix		01	02	02	09	99	99	SJC	
182	Abrasive Blaster- MPC	Phoenix		01	02	02	10	03	99	SJC	
182	Abrasive Blaster- MPC	Phoenix		01	02	02	10	04	99	SJC	
182	Abrasive Blaster- MPC	Phoenix		01	02	02	11	05	02	SJC	
182	Abrasive Blaster- MPC	Phoenix		01	02	02	11	06	02	SJC	
183	Abrasive Blaster- MPC (1-3)	Phoenix		01	01	02	07	01	03	SJC	
183	Abrasive Blaster- MPC (1-3)	Phoenix		01	01	02	08	01	03	SJC	
183	Abrasive Blaster- MPC (1-3)	Phoenix		01	01	02	08	02	03	SJC	
183	Abrasive Blaster- MPC (1-3)	Phoenix		01	02	02	09	99	99	SJC	
183	Abrasive Blaster- MPC (1-3)	Phoenix		01	02	02	10	03	99	SJC	
183	Abrasive Blaster- MPC (1-3)	Phoenix		01	02	02	10	04	99	SJC	
183	Abrasive Blaster- MPC (1-3)	Phoenix		01	02	02	11	05	02	SJC	
183	Abrasive Blaster- MPC (1-3)	Phoenix		01	02	02	11	06	02	SJC	
183	Abrasive Blaster- MPC (1-3)	Phoenix		01	02	02	12	07	99	SJC	
183	Abrasive Blaster- MPC (1-3)	Phoenix		01	02	02	12	08	99	SJC	

Tech ID #	Technology Title	Data Source	Data Source Identifier	(00) Decommissioning Categories	(01) Material Types	(02) Process Types	(03) Process Sub-Types	(04) Condition Categories	(05) Condition Sub-Categories	Basic Data Entered By	Comment
183	Abrasive Blaster- MPC (1-3)	Phoenix		01	02	02	12	99	99	SJC	
184	Aerosol Generator	Phoenix		00	00	06	36	99	99	SJC	
185	Air Blast Cleaning System	Phoenix		01	01	02	07	01	03	SJC	
185	Air Blast Cleaning System	Phoenix		01	01	02	07	02	03	SJC	
185	Air Blast Cleaning System	Phoenix		01	01	02	08	01	03	SJC	
185	Air Blast Cleaning System	Phoenix		01	01	02	08	02	03	SJC	
185	Air Blast Cleaning System	Phoenix		01	02	02	09	99	99	SJC	
185	Air Blast Cleaning System	Phoenix		01	02	02	10	03	99	SJC	
185	Air Blast Cleaning System	Phoenix		01	02	02	11	05	02	SJC	
186	Air Pak AP-2000	Phoenix		00	00	06	36	99	99	SJC	
187	Air Pak AP-2000-CH	Phoenix		00	00	06	36	99	99	SJC	
188	Air Pak AP-4000	Phoenix		00	00	06	36	99	99	SJC	
189	Air Pak AP-4000-CH	Phoenix		00	00	06	36	99	99	SJC	
190	Air Sampler- BS	Phoenix		00	00	06	34	99	99	SJC	
191	Air Sampler- LV-1	Phoenix		00	00	06	34	99	99	SJC	
192	Air Sampler- LV-2	Phoenix		00	00	06	34	99	99	SJC	
193	Air Sampler- RAS-1	Phoenix		00	00	06	34	99	99	SJC	
194	Air Sampler-TFIA-2	Phoenix		00	00	06	34	99	99	SJC	
195	Air Sampler-TFIA-3	Phoenix		00	00	06	34	99	99	SJC	
196	Air Sampler-TFIA-4	Phoenix		00	00	06	34	99	99	SJC	
197	All Weather Shelters (12x20x8)	Phoenix		00	00	06	36	99	99	SJC	
198	All Weather Shelters (24x20x8)	Phoenix		00	00	06	36	99	99	SJC	
199	Alpha Air Monitor- Alpha-6	Phoenix		00	00	06	34	99	99	SJC	
200	Alpha Scintillation Probe- AC-3	Phoenix		00	00	06	34	99	99	SJC	
201	Alternating Saw	Phoenix		01	02	03	17	10	99	SJC	
201	Alternating Saw	Phoenix		01	02	03	18	10	99	SJC	
202	AMS Carbon Soil Auger- Sampling Equipment	Phoenix		00	00	99	99	99	99	MAM	
203	Analog Smart Portable- ASP-1	Phoenix		01	00	06	34	99	99	MAM	
203	Analog Smart Portable- ASP-1	Phoenix		01	01	01	01	99	99	MAM	
203	Analog Smart Portable- ASP-1	Phoenix		01	02	01	01	99	99	MAM	
203	Analog Smart Portable- ASP-1	Phoenix		01	02	01	02	99	99	MAM	
203	Analog Smart Portable- ASP-1	Phoenix		01	03	01	01	99	99	MAM	
203	Analog Smart Portable- ASP-1	Phoenix		01	04	01	01	99	99	MAM	
203	Analog Smart Portable- ASP-1	Phoenix		02	00	06	34	99	99	MAM	
203	Analog Smart Portable- ASP-1	Phoenix		02	05	01	01	99	99	MAM	
204	Asbestos Pipe-Insulation System	Phoenix		01	04	02	99	99	99	SJC	
205	Asphalt, Concrete & Metal Air Hammer Bits	Phoenix		01	00	04	99	99	99	SJC	
205	Asphalt, Concrete & Metal Air Hammer Bits	Phoenix		01	01	04	99	99	99	SJC	
205	Asphalt, Concrete & Metal Air Hammer Bits	Phoenix		01	02	04	99	99	99	SJC	
206	Bandsaw- AC-7	Phoenix		01	02	03	18	10	99	SJC	
206	Bandsaw- AC-7	Phoenix		01	02	03	18	10	99	SJC	
207	Bandsaw- B-25-1	Phoenix		01	02	03	17	10	99	SJC	
208	Bandsaw- B-25-2	Phoenix		01	02	03	17	10	99	SJC	
209	Bandsaw- B-25-2C	Phoenix		01	02	03	17	10	99	SJC	
210	Bandsaw- B-25-3	Phoenix		01	02	03	17	10	99	SJC	
211	Bandsaw- B-25-3C	Phoenix		01	02	03	17	10	99	SJC	
212	Bandsaw- B-25-4	Phoenix		01	02	03	17	10	99	SJC	
213	Bandsaw- F-16-1	Phoenix		01	02	03	17	10	99	SJC	
213	Bandsaw- F-16-1	Phoenix		01	02	03	18	10	99	SJC	
214	Bandsaw- F-16-2	Phoenix		01	02	03	17	10	99	SJC	
214	Bandsaw- F-16-2	Phoenix		01	02	03	18	10	99	SJC	
215	Bandsaw- F-16-2A	Phoenix		01	02	03	17	10	99	SJC	
215	Bandsaw- F-16-2A	Phoenix		01	02	03	18	10	99	SJC	
216	Bandsaw- F-16-2U	Phoenix		01	02	03	17	10	99	SJC	
217	Bandsaw- L -10	Phoenix		01	02	03	17	10	99	SJC	
217	Bandsaw- L -10	Phoenix		01	02	03	18	10	99	SJC	
218	Bandsaw- P-50-3	Phoenix		01	02	03	17	10	99	SJC	
219	Bandsaw- R-2024-3	Phoenix		01	02	03	17	10	99	SJC	
220	Bandsaw- VCO-2530	Phoenix		01	02	03	17	10	99	SJC	
221	Bandsaw- VCO-2535	Phoenix		01	02	03	17	10	99	SJC	

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222	Bandsaw- W-10-1	Phoenix		01	02	03	17	10	99	SJC	
222	Bandsaw- W-10-1	Phoenix		01	02	03	18	10	99	SJC	
223	Bandsaw- W-10-2	Phoenix		01	02	03	17	10	99	SJC	
223	Bandsaw- W-10-2	Phoenix		01	02	03	18	10	99	SJC	
224	Bandsaw- W-10-2A Automatic	Phoenix		01	02	03	17	10	99	SJC	
224	Bandsaw- W-10-2A Automatic	Phoenix		01	02	03	18	10	99	SJC	
225	Bandsaw- W-9-1	Phoenix		01	02	03	17	10	99	SJC	
225	Bandsaw- W-9-1	Phoenix		01	02	03	18	10	99	SJC	
226	Bandsaw- W-9-1A1	Phoenix		01	02	03	17	10	99	SJC	
226	Bandsaw- W-9-1A1	Phoenix		01	02	03	18	10	99	SJC	
227	Bandsaw- W-9-1A3	Phoenix		01	02	03	17	10	99	SJC	
227	Bandsaw- W-9-1A3	Phoenix		01	02	03	18	10	99	SJC	
228	Bandsaw- X 6031-2	Phoenix		01	02	03	17	10	99	SJC	
229	Bandsaw-S-40-3	Phoenix		01	02	03	17	10	99	SJC	
230	Barrel Monitor- BRC Waste Analyzer	Phoenix		02	00	06	34	99	99	MAM	
230	Barrel Monitor- BRC Waste Analyzer	Phoenix		02	00	01	01	99	99	MAM	
231	Beta Air Monitor- AMS-4	Phoenix		01	00	06	34	99	99	MAM	
231	Beta Air Monitor- AMS-4	Phoenix		01	01	01	01	99	99	MAM	
232	Bicron Micro Rem- Micro Rem	Phoenix		01	00	06	34	99	99	MAM	
232	Bicron Micro Rem- Micro Rem	Phoenix		01	01	01	01	99	99	MAM	
232	Bicron Micro Rem- Micro Rem	Phoenix		01	02	01	01	99	99	MAM	
232	Bicron Micro Rem- Micro Rem	Phoenix		01	02	01	02	99	99	MAM	
232	Bicron Micro Rem- Micro Rem	Phoenix		01	03	01	01	99	99	MAM	
232	Bicron Micro Rem- Micro Rem	Phoenix		01	04	01	01	99	99	MAM	
232	Bicron Micro Rem- Micro Rem	Phoenix		02	00	06	34	99	99	MAM	
232	Bicron Micro Rem- Micro Rem	Phoenix		02	05	01	01	99	99	MAM	
233	Cadet Vaneaxial- Ventilation Unit	Phoenix		01	00	06	34	99	99	MAM	
234	Canberra Counting System- 2400	Phoenix		01	00	06	34	99	99	MAM	
234	Canberra Counting System- 2400	Phoenix		01	01	01	01	99	99	MAM	
234	Canberra Counting System- 2400	Phoenix		01	02	01	01	99	99	MAM	
234	Canberra Counting System- 2400	Phoenix		01	02	01	02	99	99	MAM	
234	Canberra Counting System- 2400	Phoenix		01	03	01	01	99	99	MAM	
234	Canberra Counting System- 2400	Phoenix		01	04	01	01	99	99	MAM	
234	Canberra Counting System- 2400	Phoenix		02	00	06	34	99	99	MAM	
234	Canberra Counting System- 2400	Phoenix		02	05	01	01	99	99	MAM	
235	Centrifugal Wheel Blast Cleaning System	Phoenix		01	01	02	07	01	03	SJC	
235	Centrifugal Wheel Blast Cleaning System	Phoenix		01	01	02	07	02	03	SJC	
235	Centrifugal Wheel Blast Cleaning System	Phoenix		01	02	02	09	99	99	SJC	
235	Centrifugal Wheel Blast Cleaning System	Phoenix		01	02	02	10	03	99	SJC	
235	Centrifugal Wheel Blast Cleaning System	Phoenix		01	02	02	10	04	99	SJC	
235	Centrifugal Wheel Blast Cleaning System	Phoenix		01	02	02	11	05	02	SJC	
236	Chemical decontamination	Phoenix		01	01	02	99	99	99	SJC	
236	Chemical decontamination	Phoenix		01	02	02	99	99	99	SJC	
236	Chemical decontamination	Phoenix		01	03	02	99	99	99	SJC	
237	Chemical Decontamination using Chelating	Phoenix		01	01	02	07	01	03	SJC	
237	Chemical Decontamination using Chelating	Phoenix		01	02	02	10	03	99	SJC	
238	CO2 Blasting Equipment- RDS-1000A	Phoenix		01	01	02	99	99	99	SJC	
238	CO2 Blasting Equipment- RDS-1000A	Phoenix		01	02	02	99	99	99	SJC	
239	CO2 Blasting Equipment- RDS-250 FP	Phoenix		01	01	02	99	99	99	SJC	
239	CO2 Blasting Equipment- RDS-250 FP	Phoenix		01	02	02	99	99	99	SJC	
240	CO2 Cleaning- Gen III	Phoenix		01	01	02	99	99	99	SJC	
240	CO2 Cleaning- Gen III	Phoenix		01	02	02	99	99	99	SJC	
241	Compactor- C6R 6-90-200	Phoenix		02	05	05	33	99	99	MAM	
242	Concrete Cutter	Phoenix		01	01	03	99	99	99	SJC	
242	Concrete Cutter	Phoenix		01	02	03	99	10	99	SJC	
243	Concrete Saw- MCC408	Phoenix		01	01	03	14	99	99	SJC	
244	Concrete Saw- Minicon 2	Phoenix		01	01	03	14	99	99	SJC	
245	Concrete Scabbler	Phoenix		01	01	02	07	01	03	SJC	
245	Concrete Scabbler	Phoenix		01	01	02	07	01	04	SJC	
245	Concrete Scabbler	Phoenix		01	01	02	07	02	03	SJC	

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245	Concrete Scabbler	Phoenix		01	01	02	07	02	04	SJC	
245	Concrete Scabbler	Phoenix		01	02	02	99	99	99	SJC	
246	Custom Abrasive Waterjet System	Phoenix		01	01	04	99	99	99	SJC	
246	Custom Abrasive Waterjet System	Phoenix		01	02	04	99	99	99	SJC	
246	Custom Abrasive Waterjet System	Phoenix		01	03	04	99	99	99	SJC	
247	Cutting Torch- 9000 Series	Phoenix		01	02	03	16	09	99	SJC	
247	Cutting Torch- 9000 Series	Phoenix		01	02	03	17	09	99	SJC	
247	Cutting Torch- 9000 Series	Phoenix		01	02	03	18	09	99	SJC	
247	Cutting Torch- 9000 Series	Phoenix		01	02	03	19	09	99	SJC	
248	Decon High Pressure Unit- KS 10' x 15'	Phoenix		01	01	02	07	01	99	SJC	
248	Decon High Pressure Unit- KS 10' x 15'	Phoenix		01	01	02	07	02	99	SJC	
248	Decon High Pressure Unit- KS 10' x 15'	Phoenix		01	01	02	08	01	99	SJC	
248	Decon High Pressure Unit- KS 10' x 15'	Phoenix		01	01	02	08	02	99	SJC	
248	Decon High Pressure Unit- KS 10' x 15'	Phoenix		01	02	02	09	99	99	SJC	
248	Decon High Pressure Unit- KS 10' x 15'	Phoenix		01	02	02	10	03	99	SJC	
248	Decon High Pressure Unit- KS 10' x 15'	Phoenix		01	02	02	11	99	99	SJC	
249	Decon High Pressure Unit- KS 48 (2 refs)	Phoenix		01	01	02	07	01	99	SJC	
249	Decon High Pressure Unit- KS 48 (2 refs)	Phoenix		01	01	02	07	02	99	SJC	
249	Decon High Pressure Unit- KS 48 (2 refs)	Phoenix		01	01	02	08	01	99	SJC	
249	Decon High Pressure Unit- KS 48 (2 refs)	Phoenix		01	01	02	08	02	99	SJC	
249	Decon High Pressure Unit- KS 48 (2 refs)	Phoenix		01	02	02	09	99	99	SJC	
249	Decon High Pressure Unit- KS 48 (2 refs)	Phoenix		01	02	02	10	03	99	SJC	
249	Decon High Pressure Unit- KS 48 (2 refs)	Phoenix		01	02	02	11	99	99	SJC	
250	Decon High Pressure Unit- KS HP 42	Phoenix		01	01	02	07	01	99	SJC	
250	Decon High Pressure Unit- KS HP 42	Phoenix		01	01	02	07	02	99	SJC	
250	Decon High Pressure Unit- KS HP 42	Phoenix		01	01	02	08	01	99	SJC	
250	Decon High Pressure Unit- KS HP 42	Phoenix		01	01	02	08	02	99	SJC	
250	Decon High Pressure Unit- KS HP 42	Phoenix		01	02	02	09	99	99	SJC	
250	Decon High Pressure Unit- KS HP 42	Phoenix		01	02	02	10	03	99	SJC	
250	Decon High Pressure Unit- KS HP 42	Phoenix		01	02	02	11	99	99	SJC	
251	Decon High Pressure Unit- KS HP 5' x 18'	Phoenix		01	01	02	07	01	99	SJC	
251	Decon High Pressure Unit- KS HP 5' x 18'	Phoenix		01	01	02	07	02	99	SJC	
251	Decon High Pressure Unit- KS HP 5' x 18'	Phoenix		01	01	02	08	01	99	SJC	
251	Decon High Pressure Unit- KS HP 5' x 18'	Phoenix		01	01	02	08	02	99	SJC	
251	Decon High Pressure Unit- KS HP 5' x 18'	Phoenix		01	02	02	09	99	99	SJC	
251	Decon High Pressure Unit- KS HP 5' x 18'	Phoenix		01	02	02	10	03	99	SJC	
251	Decon High Pressure Unit- KS HP 5' x 18'	Phoenix		01	02	02	11	99	99	SJC	
252	Decon High Pressure Unit- KS48 x 96	Phoenix		01	01	02	07	01	99	SJC	
252	Decon High Pressure Unit- KS48 x 96	Phoenix		01	01	02	07	02	99	SJC	
252	Decon High Pressure Unit- KS48 x 96	Phoenix		01	01	02	08	01	99	SJC	
252	Decon High Pressure Unit- KS48 x 96	Phoenix		01	01	02	08	02	99	SJC	
252	Decon High Pressure Unit- KS48 x 96	Phoenix		01	02	02	09	99	99	SJC	
252	Decon High Pressure Unit- KS48 x 96	Phoenix		01	02	02	10	03	99	SJC	
252	Decon High Pressure Unit- KS48 x 96	Phoenix		01	02	02	11	99	99	SJC	
254	Demolition Hammer- Wacker EH 23	Phoenix		01	01	03	14	99	99	SJC	
255	Demolition Hammer- Wacker EHB 10/110	Phoenix		01	01	03	14	99	99	SJC	
256	Demolition Hammer- Wacker EHB 7/S	Phoenix		01	01	03	14	99	99	SJC	
257	Dry Ice Blast Unit- 400A, 400B	Phoenix		01	01	02	99	99	99	SJC	
257	Dry Ice Blast Unit- 400A, 400B	Phoenix		01	02	02	99	99	99	SJC	
258	Dry Ice Blast Unit- Accelerator 1350-3	Phoenix		01	01	02	99	99	99	SJC	
258	Dry Ice Blast Unit- Accelerator 1350-3	Phoenix		01	02	02	99	99	99	SJC	
259	Dry Waste Hydraulic Compactor - Stock	Phoenix		02	05	05	33	99	99	MAM	
260	ELECTROSORB "C"	Phoenix		01	02	02	99	99	99	SJC	
261	Floor Contamination Monitor (Floor Monitor?)	Phoenix		01	00	99	99	99	99	MAM	
262	Fork Lift	Phoenix		01	00	04	99	99	99	SJC	
263	Gas Flow Proportional Probe- HP-100A	Phoenix		01	00	06	34	99	99	MAM	
264	Gas Flow Proportional Probe-HP-100B	Phoenix		01	00	06	34	99	99	MAM	
265	Gas Phase Decontamination Process Demonstration	Phoenix		01	00	02	99	99	99	SJC	
266	Gel Decontamination	Phoenix		01	02	02	99	99	99	SJC	

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267	Generator	Phoenix		01	00	07	99	99	99	MAM	
268	GM Survey Meter- E-120	Phoenix		01	00	06	34	99	99	MAM	
268	GM Survey Meter- E-120	Phoenix		01	01	01	01	99	99	MAM	
268	GM Survey Meter- E-120	Phoenix		01	02	01	01	99	99	MAM	
268	GM Survey Meter- E-120	Phoenix		01	02	01	02	99	99	MAM	
268	GM Survey Meter- E-120	Phoenix		01	03	01	01	99	99	MAM	
268	GM Survey Meter- E-120	Phoenix		01	04	01	01	99	99	MAM	
268	GM Survey Meter- E-120	Phoenix		02	00	06	34	99	99	MAM	
268	GM Survey Meter- E-120	Phoenix		02	05	01	01	99	99	MAM	
269	GM Survey Meter- E-140	Phoenix		01	00	06	34	99	99	MAM	
269	GM Survey Meter- E-140	Phoenix		01	01	01	01	99	99	MAM	
269	GM Survey Meter- E-140	Phoenix		01	02	01	01	99	99	MAM	
269	GM Survey Meter- E-140	Phoenix		01	02	01	02	99	99	MAM	
269	GM Survey Meter- E-140	Phoenix		01	03	01	01	99	99	MAM	
269	GM Survey Meter- E-140	Phoenix		01	04	01	01	99	99	MAM	
269	GM Survey Meter- E-140	Phoenix		02	00	06	34	99	99	MAM	
269	GM Survey Meter- E-140	Phoenix		02	05	01	01	99	99	MAM	
270	GM Survey Meter- E-520	Phoenix		01	00	06	34	99	99	MAM	
270	GM Survey Meter- E-520	Phoenix		01	01	01	01	99	99	MAM	
270	GM Survey Meter- E-520	Phoenix		01	02	01	01	99	99	MAM	
270	GM Survey Meter- E-520	Phoenix		01	02	01	02	99	99	MAM	
270	GM Survey Meter- E-520	Phoenix		01	03	01	01	99	99	MAM	
270	GM Survey Meter- E-520	Phoenix		01	04	01	01	99	99	MAM	
270	GM Survey Meter- E-520	Phoenix		02	00	06	34	99	99	MAM	
270	GM Survey Meter- E-520	Phoenix		02	05	01	01	99	99	MAM	
271	Guillotine Saw- Model C & D	Phoenix		01	02	03	17	10	99	SJC	
271	Guillotine Saw- Model C & D	Phoenix		01	02	03	18	10	99	SJC	
272	Half Mask Silicone Respirator - A-S5500	Phoenix		01	00	06	36	99	99	MAM	
273	Hand Probe- HP-190A	Phoenix		01	00	06	34	99	99	MAM	
273	Hand Probe- HP-190A	Phoenix		01	01	01	01	99	99	MAM	
273	Hand Probe- HP-190A	Phoenix		01	02	01	01	99	99	MAM	
273	Hand Probe- HP-190A	Phoenix		01	02	01	02	99	99	MAM	
273	Hand Probe- HP-190A	Phoenix		01	03	01	01	99	99	MAM	
273	Hand Probe- HP-190A	Phoenix		01	04	01	01	99	99	MAM	
273	Hand Probe- HP-190A	Phoenix		02	00	06	34	99	99	MAM	
273	Hand Probe- HP-190A	Phoenix		02	05	01	01	99	99	MAM	
274	Hand Probe- HP-210AL	Phoenix		01	00	06	34	99	99	MAM	
274	Hand Probe- HP-210AL	Phoenix		01	01	01	01	99	99	MAM	
274	Hand Probe- HP-210AL	Phoenix		01	02	01	01	99	99	MAM	
274	Hand Probe- HP-210AL	Phoenix		01	03	01	01	99	99	MAM	
274	Hand Probe- HP-210AL	Phoenix		01	04	01	01	99	99	MAM	
274	Hand Probe- HP-210AL	Phoenix		02	00	06	34	99	99	MAM	
274	Hand Probe- HP-210AL	Phoenix		02	05	01	01	99	99	MAM	
275	Hand Probe- HP-210L	Phoenix		01	00	06	34	99	99	MAM	
275	Hand Probe- HP-210L	Phoenix		01	01	01	01	99	99	MAM	
275	Hand Probe- HP-210L	Phoenix		01	02	01	01	99	99	MAM	
275	Hand Probe- HP-210L	Phoenix		01	03	01	01	99	99	MAM	
275	Hand Probe- HP-210L	Phoenix		01	04	01	01	99	99	MAM	
275	Hand Probe- HP-210L	Phoenix		02	00	06	34	99	99	MAM	
275	Hand Probe- HP-210L	Phoenix		02	05	01	01	99	99	MAM	
276	Hand Probe- HP-260	Phoenix		01	00	06	34	99	99	MAM	
276	Hand Probe- HP-260	Phoenix		01	01	01	01	99	99	MAM	
276	Hand Probe- HP-260	Phoenix		01	02	01	01	99	99	MAM	
276	Hand Probe- HP-260	Phoenix		01	02	01	02	99	99	MAM	
276	Hand Probe- HP-260	Phoenix		01	03	01	01	99	99	MAM	
276	Hand Probe- HP-260	Phoenix		01	04	01	01	99	99	MAM	
276	Hand Probe- HP-260	Phoenix		02	00	06	34	99	99	MAM	
276	Hand Probe- HP-260	Phoenix		02	05	01	01	99	99	MAM	

Tech ID #	Technology Title	Data Source	Data Source Identifier	(00) Decommissioning Categories	(01) Material Types	(02) Process Types	(03) Process Sub-Types	(04) Condition Categories	(05) Condition Sub-Categories	Basic Data Entered By	Comment
277	Hand Probe- HP-270	Phoenix		01	00	06	34	99	99	MAM	
277	Hand Probe- HP-270	Phoenix		01	01	01	01	99	99	MAM	
277	Hand Probe- HP-270	Phoenix		01	02	01	01	99	99	MAM	
277	Hand Probe- HP-270	Phoenix		01	02	01	02	99	99	MAM	
277	Hand Probe- HP-270	Phoenix		01	03	01	01	99	99	MAM	
277	Hand Probe- HP-270	Phoenix		01	04	01	01	99	99	MAM	
277	Hand Probe- HP-270	Phoenix		02	00	06	34	99	99	MAM	
277	Hand Probe- HP-270	Phoenix		02	05	01	01	99	99	MAM	
278	Hand Probe- LEG-1	Phoenix		01	00	06	34	99	99	MAM	
278	Hand Probe- LEG-1	Phoenix		01	01	01	01	99	99	MAM	
278	Hand Probe- LEG-1	Phoenix		01	02	01	01	99	99	MAM	
278	Hand Probe- LEG-1	Phoenix		01	02	01	02	99	99	MAM	
278	Hand Probe- LEG-1	Phoenix		01	03	01	01	99	99	MAM	
278	Hand Probe- LEG-1	Phoenix		01	04	01	01	99	99	MAM	
278	Hand Probe- LEG-1	Phoenix		02	00	06	34	99	99	MAM	
278	Hand Probe- LEG-1	Phoenix		02	05	01	01	99	99	MAM	
279	Hazardous Duty Mobile Robot- Andros 4X4	Phoenix		01	00	07	99	99	99	SJC	
279	Hazardous Duty Mobile Robot- Andros 4X4	Phoenix		02	00	07	99	99	99	SJC	
280	Hazardous Duty Mobile Robot- Andros 6X6	Phoenix		01	00	07	99	99	99	SJC	
280	Hazardous Duty Mobile Robot- Andros 6X6	Phoenix		02	00	07	99	99	99	SJC	
281	Hazardous Duty Mobile Robot- Andros Mark VI-A	Phoenix		01	00	07	99	99	99	SJC	
281	Hazardous Duty Mobile Robot- Andros Mark VI-A	Phoenix		02	00	07	99	99	99	SJC	
282	Hazardous Duty Mobile Robot- Mini Andros	Phoenix		01	00	07	99	99	99	SJC	
282	Hazardous Duty Mobile Robot- Mini Andros	Phoenix		02	00	07	99	99	99	SJC	
283	Hazardous Duty Mobile Robot- MISR	Phoenix		01	00	07	99	99	99	SJC	
283	Hazardous Duty Mobile Robot- MISR	Phoenix		02	00	07	99	99	99	SJC	
284	Hazardous Duty Mobile Robot-Andros Mark V-A	Phoenix		01	00	07	99	99	99	SJC	
284	Hazardous Duty Mobile Robot-Andros Mark V-A	Phoenix		02	00	07	99	99	99	SJC	
285	Hepa-Vacuum- Several Models	Phoenix		01	00	06	34	99	99	MAM	
286	High Pressure Fluid Assisted Dnll	Phoenix		01	01	04	99	99	99	SJC	
287	High Range Survey System- RO-7	Phoenix		01	00	06	34	99	99	MAM	
287	High Range Survey System- RO-7	Phoenix		01	01	01	01	99	99	MAM	
287	High Range Survey System- RO-7	Phoenix		01	02	01	01	99	99	MAM	
287	High Range Survey System- RO-7	Phoenix		01	02	01	02	99	99	MAM	
287	High Range Survey System- RO-7	Phoenix		01	03	01	01	99	99	MAM	
287	High Range Survey System- RO-7	Phoenix		01	04	01	01	99	99	MAM	
287	High Range Survey System- RO-7	Phoenix		02	00	06	34	99	99	MAM	
287	High Range Survey System- RO-7	Phoenix		02	05	01	01	99	99	MAM	
288	HighTemp Vacuum Distillation of Pu Salt	Phoenix		02	00	99	99	99	99	MAM	
289	HPGe Waste Barrel Analyzer- Barrel Monitor	Phoenix		02	00	06	34	99	99	MAM	
289	HPGe Waste Barrel Analyzer- Barrel Monitor	Phoenix		02	00	01	01	99	99	MAM	
290	HydraCutter C150- Concrete Saw	Phoenix		01	01	03	13	99	99	SJC	
290	HydraCutter C150- Concrete Saw	Phoenix		01	01	03	14	99	99	SJC	
290	HydraCutter C150- Concrete Saw	Phoenix		01	02	03	18	10	99	SJC	
291	Hydraulic Backhoe / Crawler	Phoenix		01	00	04	99	99	99	SJC	
292	Hydraulic Pulse Generator- Water Cannon	Phoenix		01	01	04	99	99	99	SJC	
293	Hydraulic Torque Wrench	Phoenix		01	00	04	99	99	99	SJC	
294	In Situ Secondary Ion-Mass Spectrometry	Phoenix		01	00	06	34	99	99	MAM	
294	In Situ Secondary Ion-Mass Spectrometry	Phoenix		02	00	06	34	99	99	MAM	
295	Ionization Chamber- RO-2	Phoenix		01	00	06	34	99	99	MAM	
295	Ionization Chamber- RO-2	Phoenix		01	01	01	01	99	99	MAM	
295	Ionization Chamber- RO-2	Phoenix		01	02	01	01	99	99	MAM	
295	Ionization Chamber- RO-2	Phoenix		01	02	01	02	99	99	MAM	
295	Ionization Chamber- RO-2	Phoenix		01	03	01	01	99	99	MAM	
295	Ionization Chamber- RO-2	Phoenix		01	04	01	01	99	99	MAM	
295	Ionization Chamber- RO-2	Phoenix		02	00	06	34	99	99	MAM	
295	Ionization Chamber- RO-2	Phoenix		02	05	01	01	99	99	MAM	
296	Jetair Model-3- Ventilation Unit	Phoenix		01	00	06	34	99	99	MAM	

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297	Jetair Model-9- Ventilation Unit	Phoenix		01	00	08	34	99	99	MAM	
298	Laser Ablation System for Metal & Concrete Surface	Phoenix		01	02	02	99	99	99	SJC	
299	Light Aided Technologies	Phoenix		00	00	99	99	99	99	MAM	
300	Long Reach Scabblers- 150.5092-LR	Phoenix		01	01	02	07	01	99	SJC	
300	Long Reach Scabblers- 150.5092-LR	Phoenix		01	01	02	07	02	99	SJC	
300	Long Reach Scabblers- 150.5092-LR	Phoenix		01	02	02	99	99	99	SJC	
301	Long Reach Scabblers- 150.5099-LR	Phoenix		01	01	02	07	01	99	SJC	
301	Long Reach Scabblers- 150.5099-LR	Phoenix		01	01	02	07	02	99	SJC	
301	Long Reach Scabblers- 150.5099-LR	Phoenix		01	02	02	99	99	99	SJC	
301	Long Reach Scabblers- 150.5099-LR	Phoenix		01	01	02	07	99	99	SJC	
302	Long Reach Scalers- 138.3299-2	Phoenix		01	01	02	08	99	99	SJC	
302	Long Reach Scalers- 138.3299-2	Phoenix		01	02	02	99	99	99	SJC	
302	Long Reach Scalers- 138.3299-2	Phoenix		01	01	02	07	99	99	SJC	
303	Long Reach Scalers- 138.3497-4	Phoenix		01	01	02	08	99	99	SJC	
303	Long Reach Scalers- 138.3497-4	Phoenix		01	02	02	99	99	99	SJC	
303	Long Reach Scalers- 138.3497-4	Phoenix		01	01	02	07	99	99	SJC	
304	Long Reach Scalers- 138.3699-6	Phoenix		01	01	02	08	99	99	SJC	
304	Long Reach Scalers- 138.3699-6	Phoenix		01	02	02	99	99	99	SJC	
304	Long Reach Scalers- 138.3699-6	Phoenix		01	01	02	07	99	99	SJC	
305	Long Reach Scalers- 137.3697-6	Phoenix		01	01	02	08	99	99	SJC	
305	Long Reach Scalers- 137.3697-6	Phoenix		01	02	02	99	99	99	SJC	
306	Magnetic-Wheeled Robot for Carbon Steel Inspection- Fury	Phoenix		01	02	07	04	99	99	SJC	
307	Manipulator	Phoenix		01	00	07	99	99	99	SJC	
307	Manipulator	Phoenix		02	00	07	99	99	99	SJC	
308	Mastr-Pump NE 5 hp	Phoenix		02	07	08	99	99	99	SJC	
309	Microblasting	Phoenix		01	00	02	99	99	99	SJC	
310	Mini Scaler- MS-2	Phoenix		00	00	99	99	99	99	MAM	
311	Miniature-Sized, Real-Time Radiation Detector	Phoenix		01	00	08	34	99	99	MAM	
311	Miniature-Sized, Real-Time Radiation Detector	Phoenix		01	01	01	01	99	99	MAM	
311	Miniature-Sized, Real-Time Radiation Detector	Phoenix		01	02	01	01	99	99	MAM	
311	Miniature-Sized, Real-Time Radiation Detector	Phoenix		01	02	01	02	99	99	MAM	
311	Miniature-Sized, Real-Time Radiation Detector	Phoenix		01	03	01	01	99	99	MAM	
311	Miniature-Sized, Real-Time Radiation Detector	Phoenix		01	04	01	01	99	99	MAM	
311	Miniature-Sized, Real-Time Radiation Detector	Phoenix		02	00	08	34	99	99	MAM	
311	Miniature-Sized, Real-Time Radiation Detector	Phoenix		02	05	01	01	99	99	MAM	
312	Mobile Cart Air Sampler- MRV-0523CV	Phoenix		01	00	01	01	99	99	MAM	
312	Mobile Cart Air Sampler- MRV-0523CV	Phoenix		01	00	08	34	99	99	MAM	
313	Mobile Facility- MDF-120	Phoenix		01	00	02	99	99	99	SJC	
313	Mobile Facility- MDF-120	Phoenix		01	02	02	99	99	99	SJC	
314	Mobile Office- MO208	Phoenix		00	00	99	99	99	99	MAM	
315	Mobile Radiation Detection & Mapping System- Insitu Soil Assay System	Phoenix		02	00	08	34	99	99	MAM	
315	Mobile Radiation Detection & Mapping System- Insitu Soil Assay System	Phoenix		02	05	01	01	99	99	MAM	
315	Mobile Radiation Detection & Mapping System- Insitu Soil Assay System	Phoenix		02	05	01	05	99	99	MAM	
316	Multi Stripper- BMS-1000	Phoenix		01	00	02	99	99	99	SJC	
317	Needle Scaler- 110.1099-1B	Phoenix		01	01	02	07	02	03	SJC	
317	Needle Scaler- 110.1099-1B	Phoenix		01	01	02	08	01	03	SJC	
317	Needle Scaler- 110.1099-1B	Phoenix		01	01	02	08	02	03	SJC	
317	Needle Scaler- 110.1099-1B	Phoenix		01	02	02	99	99	99	SJC	
318	Needle Scaler- 141.4099-4B	Phoenix		01	01	02	07	02	03	SJC	
318	Needle Scaler- 141.4099-4B	Phoenix		01	01	02	08	01	03	SJC	
318	Needle Scaler- 141.4099-4B	Phoenix		01	01	02	08	02	03	SJC	
318	Needle Scaler- 141.4099-4B	Phoenix		01	02	02	99	99	99	SJC	
319	Needle Scaler- Corner-Cutter	Phoenix		01	01	02	07	02	03	SJC	
319	Needle Scaler- Corner-Cutter	Phoenix		01	01	02	08	01	03	SJC	
319	Needle Scaler- Corner-Cutter	Phoenix		01	01	02	08	02	03	SJC	

Tech ID #	Technology Title	Data Source	Data Source Identifier	(00) Decommissioning Categories	(01) Material Types	(02) Process Types	(03) Process Sub-Types	(04) Condition Categories	(05) Condition Sub-Categories	Basic Data Entered By	Comment
319	Needle Scaler- Corner-Cutter	Phoenix		01	02	02	99	99	99	SJC	
320	Needle Scaler- Van Arx NP-34	Phoenix		01	01	02	07	02	03	SJC	
320	Needle Scaler- Van Arx NP-34	Phoenix		01	01	02	08	01	03	SJC	
320	Needle Scaler- Van Arx NP-34	Phoenix		01	01	02	08	02	03	SJC	
320	Needle Scaler- Van Arx NP-34	Phoenix		01	02	02	99	99	99	SJC	
321	Personal Air Sampler - 08-430	Phoenix		01	00	06	34	99	99	MAM	
322	Pipe Cutter	Phoenix		01	02	03	17	10	99	SJC	
323	Plasma Cutting System, Thermal Arc 500	Phoenix		01	02	03	17	09	99	SJC	
323	Plasma Cutting System, Thermal Arc 500	Phoenix		01	02	03	19	09	99	SJC	
324	Plasma Cutting System, Thermal Arc PAK 10XR	Phoenix		01	02	03	17	09	99	SJC	
324	Plasma Cutting System, Thermal Arc PAK 10XR	Phoenix		01	02	03	19	09	99	SJC	
325	Plasma Cutting System, Thermal Arc PAK 44	Phoenix		01	02	03	17	09	99	SJC	
325	Plasma Cutting System, Thermal Arc PAK 44	Phoenix		01	02	03	19	09	99	SJC	
326	Plasma Cutting System, Thermal Arc PAK 45	Phoenix		01	02	03	17	09	99	SJC	
326	Plasma Cutting System, Thermal Arc PAK 45	Phoenix		01	02	03	19	09	99	SJC	
327	Plasma Torch	Phoenix		01	02	03	16	09	99	SJC	
327	Plasma Torch	Phoenix		01	02	03	17	09	99	SJC	
327	Plasma Torch	Phoenix		01	02	03	18	09	99	SJC	
327	Plasma Torch	Phoenix		01	02	03	19	09	99	SJC	
328	Plasma-Mass Spectrometry - ICP-MS	Phoenix		00	00	99	99	99	99	MAM	
329	Pneumatic Nibblers- N 1000-1	Phoenix		01	02	03	16	10	99	SJC	
329	Pneumatic Nibblers- N 1000-1	Phoenix		01	02	03	17	10	99	SJC	
329	Pneumatic Nibblers- N 1000-1	Phoenix		01	02	03	18	10	99	SJC	
329	Pneumatic Nibblers- N 1000-1	Phoenix		01	02	03	19	10	99	SJC	
330	Pneumatic Nibblers- N 500-5	Phoenix		01	02	03	16	10	99	SJC	
330	Pneumatic Nibblers- N 500-5	Phoenix		01	02	03	17	10	99	SJC	
330	Pneumatic Nibblers- N 500-5	Phoenix		01	02	03	18	10	99	SJC	
330	Pneumatic Nibblers- N 500-5	Phoenix		01	02	03	19	10	99	SJC	
331	Pneumatic Nibblers- N 700-1	Phoenix		01	02	03	16	10	99	SJC	
331	Pneumatic Nibblers- N 700-1	Phoenix		01	02	03	17	10	99	SJC	
331	Pneumatic Nibblers- N 700-1	Phoenix		01	02	03	18	10	99	SJC	
331	Pneumatic Nibblers- N 700-1	Phoenix		01	02	03	19	10	99	SJC	
332	Pneumatic Pipe Cutter/Beveler- SF408 (Split Frame)	Phoenix		01	02	03	18	10	99	SJC	
333	Pneumatic Shears- S 420-1	Phoenix		01	02	03	16	10	99	SJC	
333	Pneumatic Shears- S 420-1	Phoenix		01	02	03	18	10	99	SJC	
334	Portable Blast Cleaning System (1-10D w/dust collector)	Phoenix		01	01	02	07	01	03	SJC	
334	Portable Blast Cleaning System (1-10D w/dust collector)	Phoenix		01	01	02	08	01	03	SJC	
334	Portable Blast Cleaning System (1-10D w/dust collector)	Phoenix		01	01	02	08	02	03	SJC	
334	Portable Blast Cleaning System (1-10D w/dust collector)	Phoenix		01	02	02	09	99	99	SJC	
334	Portable Blast Cleaning System (1-10D w/dust collector)	Phoenix		01	02	02	10	03	99	SJC	
334	Portable Blast Cleaning System (1-10D w/dust collector)	Phoenix		01	02	02	10	04	99	SJC	
334	Portable Blast Cleaning System (1-10D w/dust collector)	Phoenix		01	02	02	11	05	02	SJC	
334	Portable Blast Cleaning System (1-10D w/dust collector)	Phoenix		01	02	02	11	06	02	SJC	
334	Portable Blast Cleaning System (1-10D w/dust collector)	Phoenix		01	02	02	12	07	99	SJC	
334	Portable Blast Cleaning System (1-10D w/dust collector)	Phoenix		01	02	02	12	08	99	SJC	
334	Portable Blast Cleaning System (1-10D w/dust collector)	Phoenix		01	02	02	12	99	99	SJC	
335	Portable Blast Cleaning System (1-15D w/dust collector)	Phoenix		01	01	02	07	01	03	SJC	

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335	Portable Blast Cleaning System (1-15D w/dust collector)	Phoenix		01	01	02	08	01	03	SJC	
335	Portable Blast Cleaning System (1-15D w/dust collector)	Phoenix		01	01	02	08	02	03	SJC	
335	Portable Blast Cleaning System (1-15D w/dust collector)	Phoenix		01	02	02	09	99	99	SJC	
335	Portable Blast Cleaning System (1-15D w/dust collector)	Phoenix		01	02	02	10	03	99	SJC	
335	Portable Blast Cleaning System (1-15D w/dust collector)	Phoenix		01	02	02	10	04	99	SJC	
335	Portable Blast Cleaning System (1-15D w/dust collector)	Phoenix		01	02	02	11	05	02	SJC	
335	Portable Blast Cleaning System (1-15D w/dust collector)	Phoenix		01	02	02	11	06	02	SJC	
335	Portable Blast Cleaning System (1-15D w/dust collector)	Phoenix		01	02	02	12	07	99	SJC	
335	Portable Blast Cleaning System (1-15D w/dust collector)	Phoenix		01	02	02	12	08	99	SJC	
335	Portable Blast Cleaning System (1-15D w/dust collector)	Phoenix		01	02	02	12	99	99	SJC	
336	Portable Blast Cleaning System (1-20D w/dust collector)	Phoenix		01	01	02	07	01	03	SJC	
336	Portable Blast Cleaning System (1-20D w/dust collector)	Phoenix		01	01	02	08	01	03	SJC	
336	Portable Blast Cleaning System (1-20D w/dust collector)	Phoenix		01	01	02	08	02	03	SJC	
336	Portable Blast Cleaning System (1-20D w/dust collector)	Phoenix		01	02	02	09	99	99	SJC	
336	Portable Blast Cleaning System (1-20D w/dust collector)	Phoenix		01	02	02	10	03	99	SJC	
336	Portable Blast Cleaning System (1-20D w/dust collector)	Phoenix		01	02	02	10	04	99	SJC	
336	Portable Blast Cleaning System (1-20D w/dust collector)	Phoenix		01	02	02	11	05	02	SJC	
336	Portable Blast Cleaning System (1-20D w/dust collector)	Phoenix		01	02	02	11	06	02	SJC	
336	Portable Blast Cleaning System (1-20D w/dust collector)	Phoenix		01	02	02	12	07	99	SJC	
336	Portable Blast Cleaning System (1-20D w/dust collector)	Phoenix		01	02	02	12	08	99	SJC	
336	Portable Blast Cleaning System (1-20D w/dust collector)	Phoenix		01	02	02	12	99	99	SJC	
337	Portable Blast Cleaning System (1-8D w/dust collector)	Phoenix		01	01	02	07	01	03	SJC	
337	Portable Blast Cleaning System (1-8D w/dust collector)	Phoenix		01	01	02	08	01	03	SJC	
337	Portable Blast Cleaning System (1-8D w/dust collector)	Phoenix		01	01	02	08	02	03	SJC	
337	Portable Blast Cleaning System (1-8D w/dust collector)	Phoenix		01	02	02	09	99	99	SJC	
337	Portable Blast Cleaning System (1-8D w/dust collector)	Phoenix		01	02	02	10	03	99	SJC	
337	Portable Blast Cleaning System (1-8D w/dust collector)	Phoenix		01	02	02	10	04	99	SJC	
337	Portable Blast Cleaning System (1-8D w/dust collector)	Phoenix		01	02	02	11	05	02	SJC	
337	Portable Blast Cleaning System (1-8D w/dust collector)	Phoenix		01	02	02	11	06	02	SJC	
337	Portable Blast Cleaning System (1-8D w/dust collector)	Phoenix		01	02	02	12	07	99	SJC	

Tech ID #	Technology Title	Data Source	Data Source Identifier	(00) Decommissioning Categories	(01) Material Types	(02) Process Types	(03) Process Sub-Types	(04) Condition Categories	(05) Condition Sub-Categories	Basic Data Entered By	Comment
337	Portable Blast Cleaning System (1-8D w/dust collector)	Phoenix		01	02	02	12	08	99	SJC	
337	Portable Blast Cleaning System (1-8D w/dust collector)	Phoenix		01	02	02	12	99	99	SJC	
338	Portable Blast Cleaning System (1-8DEC w/dust collector)	Phoenix		01	01	02	07	01	03	SJC	
338	Portable Blast Cleaning System (1-8DEC w/dust collector)	Phoenix		01	01	02	08	01	03	SJC	
338	Portable Blast Cleaning System (1-8DEC w/dust collector)	Phoenix		01	01	02	08	02	03	SJC	
338	Portable Blast Cleaning System (1-8DEC w/dust collector)	Phoenix		01	02	02	09	99	99	SJC	
338	Portable Blast Cleaning System (1-8DEC w/dust collector)	Phoenix		01	02	02	10	03	99	SJC	
338	Portable Blast Cleaning System (1-8DEC w/dust collector)	Phoenix		01	02	02	10	04	99	SJC	
338	Portable Blast Cleaning System (1-8DEC w/dust collector)	Phoenix		01	02	02	11	05	02	SJC	
338	Portable Blast Cleaning System (1-8DEC w/dust collector)	Phoenix		01	02	02	11	06	02	SJC	
338	Portable Blast Cleaning System (1-8DEC w/dust collector)	Phoenix		01	02	02	12	07	99	SJC	
338	Portable Blast Cleaning System (1-8DEC w/dust collector)	Phoenix		01	02	02	12	08	99	SJC	
338	Portable Blast Cleaning System (1-8DEC w/dust collector)	Phoenix		01	02	02	12	99	99	SJC	
339	Portable Blast Cleaning System (1-8S w/dust collector)	Phoenix		01	01	02	07	01	03	SJC	
339	Portable Blast Cleaning System (1-8S w/dust collector)	Phoenix		01	01	02	08	01	03	SJC	
339	Portable Blast Cleaning System (1-8S w/dust collector)	Phoenix		01	01	02	08	02	03	SJC	
339	Portable Blast Cleaning System (1-8S w/dust collector)	Phoenix		01	02	02	09	99	99	SJC	
339	Portable Blast Cleaning System (1-8S w/dust collector)	Phoenix		01	02	02	10	03	99	SJC	
339	Portable Blast Cleaning System (1-8S w/dust collector)	Phoenix		01	02	02	10	04	99	SJC	
339	Portable Blast Cleaning System (1-8S w/dust collector)	Phoenix		01	02	02	11	05	02	SJC	
339	Portable Blast Cleaning System (1-8S w/dust collector)	Phoenix		01	02	02	11	06	02	SJC	
339	Portable Blast Cleaning System (1-8S w/dust collector)	Phoenix		01	02	02	12	07	99	SJC	
339	Portable Blast Cleaning System (1-8S w/dust collector)	Phoenix		01	02	02	12	08	99	SJC	
339	Portable Blast Cleaning System (1-8S w/dust collector)	Phoenix		01	02	02	12	99	99	SJC	
340	Portable Blast Cleaning System (1-9DES), electric	Phoenix		01	01	02	07	01	03	SJC	
340	Portable Blast Cleaning System (1-9DES), electric	Phoenix		01	01	02	08	01	03	SJC	
340	Portable Blast Cleaning System (1-9DES), electric	Phoenix		01	01	02	08	02	03	SJC	
340	Portable Blast Cleaning System (1-9DES), electric	Phoenix		01	02	02	09	99	99	SJC	
340	Portable Blast Cleaning System (1-9DES), electric	Phoenix		01	02	02	10	03	99	SJC	
340	Portable Blast Cleaning System (1-9DES), electric	Phoenix		01	02	02	10	04	99	SJC	
340	Portable Blast Cleaning System (1-9DES), electric	Phoenix		01	02	02	11	05	02	SJC	
340	Portable Blast Cleaning System (1-9DES), electric	Phoenix		01	02	02	11	06	02	SJC	
340	Portable Blast Cleaning System (1-9DES), electric	Phoenix		01	02	02	12	07	99	SJC	
340	Portable Blast Cleaning System (1-9DES), electric	Phoenix		01	02	02	12	08	99	SJC	
340	Portable Blast Cleaning System (1-9DES), electric	Phoenix		01	02	02	12	99	99	SJC	
341	Portable Blast Cleaning System (1-9DES),	Phoenix		01	01	02	07	01	03	SJC	

Tech #	ID	Technology Title	Data Source	Data Source Identifier	(00) Decommissioning Categories	(01) Material Types	(02) Process Types	(03) Process Sub-Types	(04) Condition Categories	(05) Condition Sub- Categories	Basic Data Entered By	Comment
341		Portable Blast Cleaning System (1-9DES).	Phoenix		01	01	02	08	01	03	SJC	
341		Portable Blast Cleaning System (1-9DES).	Phoenix		01	01	02	08	02	03	SJC	
341		Portable Blast Cleaning System (1-9DES).	Phoenix		01	02	02	09	99	99	SJC	
341		Portable Blast Cleaning System (1-9DES).	Phoenix		01	02	02	10	03	99	SJC	
341		Portable Blast Cleaning System (1-9DES).	Phoenix		01	02	02	10	04	99	SJC	
341		Portable Blast Cleaning System (1-9DES).	Phoenix		01	02	02	11	05	02	SJC	
341		Portable Blast Cleaning System (1-9DES).	Phoenix		01	02	02	11	06	02	SJC	
341		Portable Blast Cleaning System (1-9DES).	Phoenix		01	02	02	12	07	99	SJC	
341		Portable Blast Cleaning System (1-9DES).	Phoenix		01	02	02	12	08	99	SJC	
341		Portable Blast Cleaning System (1-9DES).	Phoenix		01	02	02	12	99	99	SJC	
341		Portable Blast Cleaning System (1-9DES).	Phoenix		01	02	02	12	99	99	SJC	
342		Portable Cut-Off Saw- Wacker BTS-11	Phoenix		01	01	03	15	99	99	SJC	
342		Portable Cut-Off Saw- Wacker BTS-11	Phoenix		01	02	03	17	10	99	SJC	
342		Portable Cut-Off Saw- Wacker BTS-11	Phoenix		01	02	03	18	10	99	SJC	
342		Portable Cut-Off Saw- Wacker BTS-11	Phoenix		01	02	03	19	10	99	SJC	
343		Portable Generator- Wacker G 2.5A	Phoenix		01	00	07	99	99	99	MAM	
344		Portable Generator- Wacker G 3.7A	Phoenix		01	00	07	99	99	99	MAM	
345		Portable Generator- Wacker G 5.6A	Phoenix		01	00	07	99	99	99	MAM	
346		Portable Generator- Wacker GS 5.6A	Phoenix		01	00	07	99	99	99	MAM	
347		Portable Lead Analyzer- Pb Analyzer	Phoenix		01	01	01	01	11	99	MAM	
347		Portable Lead Analyzer- Pb Analyzer	Phoenix		01	01	01	01	12	99	MAM	
347		Portable Lead Analyzer- Pb Analyzer	Phoenix		01	02	01	01	11	99	MAM	
347		Portable Lead Analyzer- Pb Analyzer	Phoenix		01	02	01	01	12	99	MAM	
347		Portable Lead Analyzer- Pb Analyzer	Phoenix		01	03	01	01	11	99	MAM	
347		Portable Lead Analyzer- Pb Analyzer	Phoenix		01	03	01	01	12	99	MAM	
347		Portable Lead Analyzer- Pb Analyzer	Phoenix		02	05	01	99	99	99	MAM	
348		Portable LIN-LOG Gas Proportional Alpha Counter PAC-4G-3	Phoenix		01	00	06	34	99	99	MAM	
348		Portable LIN-LOG Gas Proportional Alpha Counter PAC-4G-3	Phoenix		01	01	01	01	99	99	MAM	
348		Portable LIN-LOG Gas Proportional Alpha Counter PAC-4G-3	Phoenix		01	02	01	01	99	99	MAM	
348		Portable LIN-LOG Gas Proportional Alpha Counter PAC-4G-3	Phoenix		01	02	01	02	99	99	MAM	
348		Portable LIN-LOG Gas Proportional Alpha Counter PAC-4G-3	Phoenix		01	03	01	01	99	99	MAM	
348		Portable LIN-LOG Gas Proportional Alpha Counter PAC-4G-3	Phoenix		01	04	01	01	99	99	MAM	
348		Portable LIN-LOG Gas Proportional Alpha Counter PAC-4G-3	Phoenix		02	00	06	34	99	99	MAM	
348		Portable LIN-LOG Gas Proportional Alpha Counter PAC-4G-3	Phoenix		02	05	01	01	99	99	MAM	
349		Portable Ion Chamber- PIC-6B	Phoenix		01	00	06	34	99	99	MAM	
349		Portable Ion Chamber- PIC-6B	Phoenix		01	01	01	01	99	99	MAM	
349		Portable Ion Chamber- PIC-6B	Phoenix		01	02	01	01	99	99	MAM	
349		Portable Ion Chamber- PIC-6B	Phoenix		01	02	01	02	99	99	MAM	
349		Portable Ion Chamber- PIC-6B	Phoenix		01	03	01	01	99	99	MAM	
349		Portable Ion Chamber- PIC-6B	Phoenix		01	04	01	01	99	99	MAM	
349		Portable Ion Chamber- PIC-6B	Phoenix		02	00	06	34	99	99	MAM	
349		Portable Ion Chamber- PIC-6B	Phoenix		02	05	01	01	99	99	MAM	
350		Portable Micro "R" Meter - ASP-1/SPA-8	Phoenix		01	00	06	34	99	99	MAM	
350		Portable Micro "R" Meter - ASP-1/SPA-8	Phoenix		01	01	01	01	99	99	MAM	
350		Portable Micro "R" Meter - ASP-1/SPA-8	Phoenix		01	02	01	01	99	99	MAM	
350		Portable Micro "R" Meter - ASP-1/SPA-8	Phoenix		01	02	01	02	99	99	MAM	
350		Portable Micro "R" Meter - ASP-1/SPA-8	Phoenix		01	03	01	01	99	99	MAM	
350		Portable Micro "R" Meter - ASP-1/SPA-8	Phoenix		01	04	01	01	99	99	MAM	
350		Portable Micro "R" Meter - ASP-1/SPA-8	Phoenix		02	00	06	34	99	99	MAM	
350		Portable Micro "R" Meter - ASP-1/SPA-8	Phoenix		02	05	01	01	99	99	MAM	
351		Portable Neutron rem Counter- ASP-1/NRD	Phoenix		01	00	06	34	99	99	MAM	
351		Portable Neutron rem Counter- ASP-1/NRD	Phoenix		01	01	01	01	99	99	MAM	
351		Portable Neutron rem Counter- ASP-1/NRD	Phoenix		01	02	01	01	99	99	MAM	

Tech ID #	Technology Title	Data Source	Data Source Identifier	(00) Decommissioning Categories	(01) Material Types	(02) Process Types	(03) Process Sub-Types	(04) Condition Categories	(05) Condition Sub-Categories	Basic Data Entered By	Comment
351	Portable Neutron rem Counter- ASP-1/NRD	Phoenix		01	02	01	02	99	99	MAM	
351	Portable Neutron rem Counter- ASP-1/NRD	Phoenix		01	03	01	01	99	99	MAM	
351	Portable Neutron rem Counter- ASP-1/NRD	Phoenix		01	04	01	01	99	99	MAM	
351	Portable Neutron rem Counter- ASP-1/NRD	Phoenix		02	00	08	34	99	99	MAM	
351	Portable Neutron rem Counter- ASP-1/NRD	Phoenix		02	05	01	01	99	99	MAM	
352	Portable Photometer - TDA-2G	Phoenix		01	00	08	34	99	99	MAM	
352	Portable Photometer - TDA-2G	Phoenix		01	01	01	01	99	99	MAM	
352	Portable Photometer - TDA-2G	Phoenix		01	02	01	01	99	99	MAM	
352	Portable Photometer - TDA-2G	Phoenix		01	02	01	02	99	99	MAM	
352	Portable Photometer - TDA-2G	Phoenix		01	03	01	01	99	99	MAM	
352	Portable Photometer - TDA-2G	Phoenix		01	04	01	01	99	99	MAM	
352	Portable Photometer - TDA-2G	Phoenix		02	00	08	34	99	99	MAM	
352	Portable Photometer - TDA-2G	Phoenix		02	05	01	01	99	99	MAM	
353	Portable Ventilation System - NARED	Phoenix		01	00	08	34	99	99	MAM	
354	Power Shovel	Phoenix		02	00	04	99	99	99	SJC	
355	Radiation Monitor- RM-14S	Phoenix		01	00	08	34	99	99	MAM	
355	Radiation Monitor- RM-14S	Phoenix		01	01	01	01	99	99	MAM	
355	Radiation Monitor- RM-14S	Phoenix		01	02	01	01	99	99	MAM	
355	Radiation Monitor- RM-14S	Phoenix		01	02	01	02	99	99	MAM	
355	Radiation Monitor- RM-14S	Phoenix		01	03	01	01	99	99	MAM	
355	Radiation Monitor- RM-14S	Phoenix		01	04	01	01	99	99	MAM	
355	Radiation Monitor- RM-14S	Phoenix		02	00	08	34	99	99	MAM	
355	Radiation Monitor- RM-14S	Phoenix		02	05	01	01	99	99	MAM	
356	Radiation Monitor- RM-20	Phoenix		01	00	08	34	99	99	MAM	
356	Radiation Monitor- RM-20	Phoenix		01	01	01	01	99	99	MAM	
356	Radiation Monitor- RM-20	Phoenix		01	02	01	01	99	99	MAM	
356	Radiation Monitor- RM-20	Phoenix		01	02	01	02	99	99	MAM	
356	Radiation Monitor- RM-20	Phoenix		01	03	01	01	99	99	MAM	
356	Radiation Monitor- RM-20	Phoenix		01	04	01	01	99	99	MAM	
356	Radiation Monitor- RM-20	Phoenix		02	00	08	34	99	99	MAM	
356	Radiation Monitor- RM-20	Phoenix		02	05	01	01	99	99	MAM	
357	Radiation Monitor- RM-21	Phoenix		01	00	08	34	99	99	MAM	
357	Radiation Monitor- RM-21	Phoenix		01	01	01	01	99	99	MAM	
357	Radiation Monitor- RM-21	Phoenix		01	02	01	01	99	99	MAM	
357	Radiation Monitor- RM-21	Phoenix		01	02	01	02	99	99	MAM	
357	Radiation Monitor- RM-21	Phoenix		01	03	01	01	99	99	MAM	
357	Radiation Monitor- RM-21	Phoenix		01	04	01	01	99	99	MAM	
357	Radiation Monitor- RM-21	Phoenix		02	00	08	34	99	99	MAM	
357	Radiation Monitor- RM-21	Phoenix		02	05	01	01	99	99	MAM	
358	Radon Gas Meter - TN-Rn2000	Phoenix		01	00	08	34	99	99	MAM	
358	Radon Gas Meter - TN-Rn2000	Phoenix		01	00	01	01	99	99	MAM	
358	Radon Gas Meter - TN-Rn2000	Phoenix		02	00	08	34	99	99	MAM	
358	Radon Gas Meter - TN-Rn2000	Phoenix		02	05	01	01	99	99	MAM	
358	Radon Gas Meter - TN-Rn2000	Phoenix		02	08	01	01	99	99	MAM	
358	Radon Gas Meter - TN-Rn2000	Phoenix		02	07	01	01	99	99	MAM	
359	Radon WL Meter - TN-WL-02	Phoenix		01	00	08	34	99	99	MAM	
359	Radon WL Meter - TN-WL-02	Phoenix		01	00	01	01	99	99	MAM	
360	Reconfigurable In-Tank Mobile Robot	Phoenix		01	00	07	04	99	99	SJC	
361	Remote Clean & Coat System for Spent Fuel	Phoenix		01	01	07	99	99	99	SJC	
361	Remote Clean & Coat System for Spent Fuel	Phoenix		01	02	07	99	99	99	SJC	
362	Remote CO-2 Pellet Blasting System-ROVCO-2	Phoenix		01	01	02	07	01	03	SJC	
362	Remote CO-2 Pellet Blasting System-ROVCO-2	Phoenix		01	01	02	07	02	03	SJC	
362	Remote CO-2 Pellet Blasting System-ROVCO-2	Phoenix		01	02	02	11	05	02	SJC	
363	Remote Decon & Dismantling Vehicle	Phoenix		01	00	02	99	99	99	SJC	
363	Remote Decon & Dismantling Vehicle	Phoenix		01	00	04	99	99	99	SJC	
364	Remote Excavator- Haz-Trak	Phoenix		01	00	07	99	99	99	SJC	
364	Remote Excavator- Haz-Trak	Phoenix		02	00	07	99	99	99	SJC	
365	Remote Floor Scabber- Moose	Phoenix		01	01	02	07	99	99	SJC	
366	Remote Internal Pipe Inspector- Pneu-Worm	Phoenix		01	00	07	02	99	99	SJC	
367	Remote Work Platform for Tank Waste Retrieval	Phoenix		02	08	07	99	99	99	SJC	

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367		Remote Work Platform for Tank Waste Retrieval	Phoenix		02	07	07	99	99	99	SJC	
368		Remotely Operated Inspection Vehicle- M5 A Scout	Phoenix		00	00	07	04	99	99	SJC	
369		Removing Plutonium from Waste Streams	Phoenix		02	05	08	39	99	99	MAM	
369		Removing Plutonium from Waste Streams	Phoenix		02	08	08	39	99	99	MAM	
369		Removing Plutonium from Waste Streams	Phoenix		02	07	08	39	99	99	MAM	
370		ROBOCON Operator Interface for Robotic Applications	Phoenix		01	00	07	99	99	99	SJC	
370		ROBOCON Operator Interface for Robotic Applications	Phoenix		02	00	07	99	99	99	SJC	
371		Robotic End Effector for Inspection of Storage Tanks	Phoenix		01	07	07	99	99	99	SJC	
371		Robotic End Effector for Inspection of Storage Tanks	Phoenix		01	07	07	04	99	99	SJC	
372		Robotic System to Retrieve Tubes (TRR)	Phoenix		01	02	07	18	10	99	SJC	
372		Robotic System to Retrieve Tubes (TRR)	Phoenix		01	02	07	18	10	99	SJC	
373		Rotary Vane Low Volume Air Sampler- VS23-0523CV	Phoenix		01	00	01	01	99	99	MAM	
373		Rotary Vane Low Volume Air Sampler- VS23-0523CV	Phoenix		01	00	08	34	99	99	MAM	
374		Sampling Equipment- AMS 4130	Phoenix		00	00	99	99	99	99	MAM	
375		Sampling Equipment- B-460 00	Phoenix		00	00	99	99	99	99	MAM	
376		Scabbler- 1-UF	Phoenix		01	01	02	07	01	99	SJC	
376		Scabbler- 1-UF	Phoenix		01	01	02	07	02	99	SJC	
377		Scabbler- 3-WCD	Phoenix		01	01	02	07	01	99	SJC	
377		Scabbler- 3-WCD	Phoenix		01	01	02	07	02	99	SJC	
378		Scabbler- CD-5	Phoenix		01	01	02	07	01	99	SJC	
378		Scabbler- CD-5	Phoenix		01	01	02	07	02	99	SJC	
379		Scabbler- L-5	Phoenix		01	01	02	07	01	99	SJC	
379		Scabbler- L-5	Phoenix		01	01	02	07	02	99	SJC	
380		Scabbler- L-7	Phoenix		01	01	02	07	01	99	SJC	
380		Scabbler- L-7	Phoenix		01	01	02	07	02	99	SJC	
381		Scabbler- Squirrel	Phoenix		01	01	02	07	01	99	SJC	
381		Scabbler- Squirrel	Phoenix		01	01	02	07	02	99	SJC	
381		Scabbler- Squirrel	Phoenix		01	01	02	08	99	99	SJC	
382		Scabbler- U-11	Phoenix		01	01	02	07	01	99	SJC	
382		Scabbler- U-11	Phoenix		01	01	02	07	02	99	SJC	
383		Scabbler- U-3	Phoenix		01	01	02	07	01	99	SJC	
383		Scabbler- U-3	Phoenix		01	01	02	07	02	99	SJC	
384		Scabbler- U-5	Phoenix		01	01	02	07	01	99	SJC	
384		Scabbler- U-5	Phoenix		01	01	02	07	02	99	SJC	
385		Scabbler- U-7	Phoenix		01	01	02	07	01	99	SJC	
385		Scabbler- U-7	Phoenix		01	01	02	07	02	99	SJC	
386		Scaling Hammers- 151 5199-SH-1	Phoenix		01	01	02	07	99	99	SJC	
386		Scaling Hammers- 151 5199-SH-1	Phoenix		01	02	02	99	99	99	SJC	
387		Scaling Hammers- 199 5190-HD SSH-3	Phoenix		01	01	02	07	99	99	SJC	
387		Scaling Hammers- 199 5190-HD SSH-3	Phoenix		01	02	02	99	99	99	SJC	
388		Sanitizing Machine- MPL-5VR	Phoenix		01	01	03	15	99	99	SJC	
389		Scintillation Probe - SPA-8	Phoenix		01	00	08	34	99	99	MAM	
389		Scintillation Probe - SPA-8	Phoenix		02	00	08	34	99	99	MAM	
390		Separation of HTO Using Membranes and Tritium Membrane Test	Phoenix		02	07	08	39	99	99	MAM	
391		Shot Blaster- Goff 15e13	Phoenix		01	01	02	07	01	03	SJC	
391		Shot Blaster- Goff 15e13	Phoenix		01	02	02	11	05	02	SJC	
392		Shredder- Industrial Model	Phoenix		01	03	05	33	99	99	MAM	
393		Shredder- Mobile	Phoenix		01	01	05	33	99	99	MAM	
393		Shredder- Mobile	Phoenix		01	02	05	33	99	99	MAM	
393		Shredder- Mobile	Phoenix		01	00	05	33	99	99	MAM	
394		Smart Portable- ESP-1	Phoenix		01	00	08	34	99	99	MAM	
394		Smart Portable- ESP-1	Phoenix		01	01	01	01	99	99	MAM	

Tech #	ID	Technology Title	Data Source	Data Source Identifier	(00) Decommissioning Categories	(01) Material Types	(02) Process Types	(03) Process Sub-Types	(04) Condition Categories	(05) Condition Sub-Categories	Basic Data Entered By	Comment
394		Smart Portable- ESP-1	Phoenix		01	02	01	01	99	99	MAM	
394		Smart Portable- ESP-1	Phoenix		01	02	01	02	99	99	MAM	
394		Smart Portable- ESP-1	Phoenix		01	03	01	01	99	99	MAM	
394		Smart Portable- ESP-1	Phoenix		01	04	01	01	99	99	MAM	
394		Smart Portable- ESP-1	Phoenix		02	00	06	34	99	99	MAM	
394		Smart Portable- ESP-1	Phoenix		02	05	01	01	99	99	MAM	
395		Smart Portable- ESP-2	Phoenix		01	00	06	34	99	99	MAM	
395		Smart Portable- ESP-2	Phoenix		01	01	01	01	99	99	MAM	
395		Smart Portable- ESP-2	Phoenix		01	02	01	01	99	99	MAM	
395		Smart Portable- ESP-2	Phoenix		01	02	01	02	99	99	MAM	
395		Smart Portable- ESP-2	Phoenix		01	03	01	01	99	99	MAM	
395		Smart Portable- ESP-2	Phoenix		01	04	01	01	99	99	MAM	
395		Smart Portable- ESP-2	Phoenix		02	00	06	34	99	99	MAM	
395		Smart Portable- ESP-2	Phoenix		02	05	01	01	99	99	MAM	
396		Soft Media and Blast Equipment	Phoenix		01	01	02	07	99	03	SJC	
396		Soft Media and Blast Equipment	Phoenix		01	01	02	08	99	03	SJC	
396		Soft Media and Blast Equipment	Phoenix		01	02	02	10	03	99	SJC	
396		Soft Media and Blast Equipment	Phoenix		01	02	02	11	05	02	SJC	
396		Soft Media and Blast Equipment	Phoenix		01	02	02	11	06	02	SJC	
397		Sponge-Jet Surface Prep & Cleaning System	Phoenix		01	01	02	07	99	03	SJC	
397		Sponge-Jet Surface Prep & Cleaning System	Phoenix		01	01	02	08	99	03	SJC	
397		Sponge-Jet Surface Prep & Cleaning System	Phoenix		01	02	02	10	03	99	SJC	
397		Sponge-Jet Surface Prep & Cleaning System	Phoenix		01	02	02	11	05	02	SJC	
397		Sponge-Jet Surface Prep & Cleaning System	Phoenix		01	02	02	11	06	02	SJC	
398		Sprung Instant Shellers	Phoenix		01	00	06	36	99	99	MAM	
399		Strippable Coating Removal	Phoenix		01	01	02	07	01	03	SJC	
399		Strippable Coating Removal	Phoenix		01	01	02	07	02	03	SJC	
399		Strippable Coating Removal	Phoenix		01	01	02	08	01	03	SJC	
399		Strippable Coating Removal	Phoenix		01	01	02	08	02	03	SJC	
399		Strippable Coating Removal	Phoenix		01	02	02	99	99	99	SJC	
400		Tank Waste Retrieval/Surface Decon	Phoenix		01	02	02	12	07	99	SJC	
400		Tank Waste Retrieval/Surface Decon	Phoenix		01	02	02	12	08	99	SJC	
400		Tank Waste Retrieval/Surface Decon	Phoenix		01	02	02	12	99	99	SJC	
401		Tractor w/Backhoe &Loader	Phoenix		02	00	04	99	99	99	SJC	
402		Trash Pump	Phoenix		02	07	02	99	99	99	SJC	
403		Tritium Contamination Monitor - 05-667	Phoenix		01	00	06	34	99	99	MAM	
403		Tritium Contamination Monitor - 05-667	Phoenix		01	01	01	01	99	99	MAM	
403		Tritium Contamination Monitor - 05-667	Phoenix		01	02	01	01	99	99	MAM	
403		Tritium Contamination Monitor - 05-667	Phoenix		01	02	01	02	99	99	MAM	
403		Tritium Contamination Monitor - 05-667	Phoenix		01	03	01	01	99	99	MAM	
403		Tritium Contamination Monitor - 05-667	Phoenix		01	04	01	01	99	99	MAM	
403		Tritium Contamination Monitor - 05-667	Phoenix		02	00	06	34	99	99	MAM	
403		Tritium Contamination Monitor - 05-667	Phoenix		02	05	01	01	99	99	MAM	
404		TRUclean Soil Decon System - TRUclean	Phoenix		02	05	08	39	99	99	MAM	
404		TRUclean Soil Decon System - TRUclean	Phoenix		02	06	08	39	99	99	MAM	
405		Tru-Motion Manipulator- Model 6 TM-2442	Phoenix		01	00	07	99	99	99	SJC	
405		Tru-Motion Manipulator- Model 6 TM-2442	Phoenix		02	00	07	99	99	99	SJC	
406		Underwater Remote Video Inspection System- E-ROV	Phoenix		01	00	07	04	99	99	SJC	
407		Vac-Pac HEPA Vacuum- Model-9 Air Powered	Phoenix		01	01	02	07	01	03	SJC	
408		Vacuum Blast System- ABB U1-CP	Phoenix		01	01	02	07	01	03	SJC	
409		Vacuum Blaster- deKleyn dks 7116	Phoenix		01	01	02	07	01	03	SJC	
409		Vacuum Blaster- deKleyn dks 7116	Phoenix		01	02	02	11	05	02	SJC	
409		Vacuum Blaster- deKleyn dks 7116	Phoenix		01	02	02	11	06	02	SJC	
410		Vacuum Blaster- P-06-2	Phoenix		01	01	02	07	01	03	SJC	
410		Vacuum Blaster- P-06-2	Phoenix		01	02	02	11	05	02	SJC	
410		Vacuum Blaster- P-06-2	Phoenix		01	02	02	11	06	02	SJC	
411		Vacuum Blaster- P-08-2	Phoenix		01	01	02	07	01	03	SJC	
411		Vacuum Blaster- P-08-2	Phoenix		01	02	02	11	05	02	SJC	
411		Vacuum Blaster- P-08-2	Phoenix		01	02	02	11	06	02	SJC	

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412	Vacuum Blaster- PB-05U	Phoenix		01	01	02	07	01	03	SJC	
412	Vacuum Blaster- PB-05U	Phoenix		01	02	02	11	05	02	SJC	
412	Vacuum Blaster- PB-05U	Phoenix		01	02	02	11	06	02	SJC	
413	Vacuum Blaster- S-04	Phoenix		01	01	02	07	01	03	SJC	
413	Vacuum Blaster- S-04	Phoenix		01	02	02	11	05	02	SJC	
413	Vacuum Blaster- S-04	Phoenix		01	02	02	11	06	02	SJC	
414	Vacuum Blaster- SB-03	Phoenix		01	01	02	07	01	03	SJC	
414	Vacuum Blaster- SB-03	Phoenix		01	02	02	11	05	02	SJC	
414	Vacuum Blaster- SB-03	Phoenix		01	02	02	11	06	02	SJC	
415	Vacuum Blaster- SH03	Phoenix		01	01	02	07	01	03	SJC	
415	Vacuum Blaster- SH03	Phoenix		01	02	02	11	05	02	SJC	
415	Vacuum Blaster- SH03	Phoenix		01	02	02	11	06	02	SJC	
416	Vehicle Monitor-Remote w/ 2 Pylon Detectors- 501A-5RP	Phoenix		00	00	99	99	99	99	MAM	
417	Ventilation Unit- MAC-21 P/N FM37	Phoenix		01	00	06	34	99	99	MAM	
418	Ventilation Unit- PFX-1400A	Phoenix		01	00	06	34	99	99	MAM	
419	Ventilation Unit- Portaire Model- 4/6	Phoenix		01	00	06	34	99	99	MAM	
420	Waste Compactors- MPC-60	Phoenix		02	00	05	33	99	99	MAM	
420	Waste Compactors- MPC-60	Phoenix		02	05	05	33	99	99	MAM	
421	Water Soluble Polymers for Actinide Removal	Phoenix		00	00	99	99	99	99	MAM	
422	Wire Saw-BBC-40	Phoenix		01	01	03	99	99	99	SJC	
422	Wire Saw-BBC-40	Phoenix		01	02	03	99	10	99	SJC	
423	Passive Aerosol Generator	F-LSDP-A		01	01	02	07	01	99	MAM	
423	Passive Aerosol Generator	F-LSDP-A		01	01	02	07	02	99	MAM	
423	Passive Aerosol Generator	F-LSDP-A		01	01	02	08	01	99	MAM	
423	Passive Aerosol Generator	F-LSDP-A		01	01	02	08	02	99	MAM	
423	Passive Aerosol Generator	F-LSDP-A		01	02	02	10	03	99	MAM	
423	Passive Aerosol Generator	F-LSDP-A		01	02	02	10	04	99	MAM	
423	Passive Aerosol Generator	F-LSDP-A		01	00	06	34	99	99	MAM	
424	Brokk BM250	F-LSDP-A		01	02	03	18	10	99	MAM	
424	Brokk BM250	F-LSDP-A		01	02	03	18	10	99	MAM	
424	Brokk BM250	F-LSDP-A		01	02	07	99	99	99	MAM	
424	Brokk BM250	F-LSDP-A		01	00	07	99	99	99	MAM	
425	Hydraulic Cutting Device	F-LSDP-A		01	02	03	99	10	99	MAM	
425	Hydraulic Cutting Device	F-LSDP-A		01	02	07	99	99	99	MAM	
425	Hydraulic Cutting Device	F-LSDP-A		01	00	07	99	99	99	MAM	
426	Transite "Bolt" Removal and Capture Device	F-LSDP-A		01	02	03	99	10	99	MAM	
426	Transite "Bolt" Removal and Capture Device	F-LSDP-A		01	02	07	99	99	99	MAM	
426	Transite "Bolt" Removal and Capture Device	F-LSDP-A		01	00	07	99	99	99	MAM	
427	Remotely Operated Mobile Worksystem	F-LSDP-A		01	00	07	99	99	99	MAM	
428	USRADS (soil characterization)	F-LSDP-A		01	00	01	01	13	99	MAM	
429	Pneu-worm (REMOTEC Robots)	F-LSDP-R		01	02	01	02	11	99	MAM	
429	Pneu-worm (REMOTEC Robots)	F-LSDP-R		01	02	01	02	12	99	MAM	
429	Pneu-worm (REMOTEC Robots)	F-LSDP-R		01	00	07	99	99	99	MAM	
430	Infrared Spectroscopy	F-LSDP-R		01	00	01	99	99	99	MAM	
431	ANDROS Hazardous duty mobile robots	F-LSDP-R		01	00	07	99	99	99	MAM	
432	Wavelength Dispersive X-ray Spectroscopy	F-LSDP-R		01	00	01	99	99	99	MAM	
433	Telerobotic System	F-LSDP-R		01	00	07	99	99	99	MAM	
434	Remotely Controlled/Mobile Cutting & Supporting Unit	F-LSDP-R		01	00	07	99	99	99	MAM	
434	Remotely Controlled/Mobile Cutting & Supporting Unit	F-LSDP-R		01	02	01	02	99	99	MAM	
435	Supplied Air Containment	F-LSDP-R		01	00	06	36	99	99	MAM	
436	DECOHA Process Chemical Decontamination of Metal	F-LSDP-R		01	02	02	10	99	99	MAM	
436	DECOHA Process Chemical Decontamination of Metal	F-LSDP-R		01	02	02	12	99	99	MAM	
437	Actosol	F-LSDP-R		01	02	02	99	99	99	MAM	
438	KSI Tentacle Manipulator	F-LSDP-R		01	00	07	99	99	99	MAM	
439	PO*WV*ER Aqueous Waste Treatment	F-LSDP-R		02	07	08	37	99	99	MAM	

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439	PO*W*ER Aqueous Waste Treatment	F-LSDP-R		02	07	08	38	99	99	MAM	
440	Airtight Modular Workshop	F-LSDP-R		01	00	06	34	99	99	MAM	
440	Airtight Modular Workshop	F-LSDP-R		01	00	06	36	99	99	MAM	
441	Plasma Arc Cutting Underwater	F-LSDP-R		01	02	03	99	99	99	MAM	
442	Laser Photoacoustic Spectroscopy	F-LSDP-R		01	00	01	99	99	99	MAM	
443	Plasma Arc Fixed-Hearth Furnace	TMS	28	02	05	08	40	99	99	MAM	
443	Plasma Arc Fixed-Hearth Furnace	TMS	26	02	05	08	41	99	99	MAM	
443	Plasma Arc Fixed-Hearth Furnace	TMS	26	01	00	05	33	99	99	MAM	
444	Vortec Combustion Melter System	TMS	68	02	05	08	40	99	99	MAM	
444	Vortec Combustion Melter System	TMS	68	02	05	08	41	99	99	MAM	
444	Vortec Combustion Melter System	TMS	68	01	00	05	33	99	99	MAM	
445	Gas Phase Decontamination Process for Gaseous Diffusion Equipment	TMS	88	01	02	02	12	99	99	MAM	
445	Gas Phase Decontamination Process for Gaseous Diffusion Equipment	TMS	88	01	02	02	10	99	99	MAM	
446	Catalytic Chemical Oxidation (Delphi Detox)	TMS	106	01	00	08	37	99	99	MAM	
446	Catalytic Chemical Oxidation (Delphi Detox)	TMS	106	02	07	08	37	99	99	MAM	
447	Low Temperature Thermal Desorption (Vac Trax)	TMS	107	01	00	08	37	99	99	MAM	
447	Low Temperature Thermal Desorption (Vac Trax)	TMS	107	02	05	08	37	99	99	MAM	
448	Waste Inspection Tomography (WIT)	TMS	259	01	00	01	03	13	99	MAM	
449	Intelligent Inspection and Survey Robot	TMS	272	01	00	07	99	99	99	MAM	
449	Intelligent Inspection and Survey Robot	TMS	272	01	00	01	03	99	99	MAM	
450	Multi-Analyte, Single Fiber Optical Sensor	TMS	383	01	00	07	99	99	99	MAM	
450	Multi-Analyte, Single Fiber Optical Sensor	TMS	383	01	00	01	99	99	99	MAM	
451	Associated Particle Imaging Development	TMS	413	01	00	01	03	13	99	MAM	
452	Tooling Systems for Massive Equipment Size Reduction and Removal	TMS	1462	01	00	07	99	99	99	MAM	
452	Tooling Systems for Massive Equipment Size Reduction and Removal	TMS	1462	01	02	03	99	99	99	MAM	
453	3-D Mapping System	105-C ISSP		01	01	01	99	99	99	SJC	
453	3-D Mapping System	105-C ISSP		01	02	01	99	99	99	SJC	
453	3-D Mapping System	105-C ISSP		01	03	01	99	99	99	SJC	
454	Automatic Conveyor Monitor	105-C ISSP		02	05	08	99	99	99	SJC	
455	Box and Container Counter System	105-C ISSP		02	05	08	99	99	99	SJC	
455	Box and Container Counter System	105-C ISSP		02	06	08	99	99	99	SJC	
455	Box and Container Counter System	105-C ISSP		02	07	08	99	99	99	SJC	
456	Field-Portable Energy Dispersive X-Ray Fluorescence Analytical Instrument with Increased Sensitivity	105-C ISSP		01	00	01	99	99	99	SJC	
457	Gamma Spectroscopy	105-C ISSP		02	05	08	99	99	99	SJC	
457	Gamma Spectroscopy	105-C ISSP		02	06	08	99	99	99	SJC	
457	Gamma Spectroscopy	105-C ISSP		02	07	08	99	99	99	SJC	
458	Imaging Nuclear Survey Instrumentation	105-C ISSP		01	00	01	99	99	99	SJC	
459	In-Situ Gamma Spectroscopy Counting System	105-C ISSP		01	00	01	01	99	99	SJC	
460	JQ3 Drum Counting System	105-C ISSP		02	00	08	99	99	99	SJC	
461	Chemical Decontamination with Recycle	105-C ISSP		01	00	02	99	99	99	SJC	
462	Laser Ablation Decontamination	105-C ISSP		01	00	02	99	99	99	SJC	
463	Laser Based Coating Removal System	105-C ISSP		01	00	02	99	99	99	SJC	
464	Laser Surface Decontamination	105-C ISSP		01	00	02	99	99	99	SJC	
465	Liquid Abrasive Blast Cleaning	105-C ISSP		01	00	02	99	99	99	SJC	
466	Strippable Polymer	105-C ISSP		01	00	02	99	99	99	SJC	
467	Air Cooled Respirator/Suit	105-C ISSP		01	00	06	36	99	99	SJC	
468	Nu Fab Sack Suit	105-C ISSP		01	00	06	36	99	99	SJC	
469	Bulk Media Processing	105-C ISSP		02	00	08	99	99	99	SJC	
470	Processing ACM for Disposal	105-C ISSP		02	04	08	99	99	99	SJC	
471	Characterization Data Management Systems	105-C ISSP		01	00	01	99	99	99	SJC	
472	In-Situ Gamma Spectroscopy Counting Systems for Samplers or Objects	105-C ISSP		01	00	01	99	99	99	SJC	
473	In-Situ Gamma Spectroscopy Counting Systems for Soils and Surfaces	105-C ISSP		01	00	01	99	99	99	SJC	

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474	Waste Sorting/Segregation	105-C ISSP		02	05	05	30	99	99	SJC	
475	Decontamination Gel	105-C ISSP		01	00	02	99	99	99	SJC	
476	Ultrasonic	105-C ISSP		01	00	02	99	99	99	SJC	
477	Steel Plates and Grout	105-C ISSP		02	00	08	99	99	99	SJC	
478	Light Weight Sheeting	105-C ISSP		02	00	08	99	99	99	SJC	
479	Spray on Encapsulant	105-C ISSP		02	00	08	99	99	99	SJC	
480	Bio Surface Degradation	Demo Summary		01	00	02	99	99	99	SJC	
481	LN2 Carrier w/Solid CO2 Particles	Demo Summary		01	00	02	99	99	99	SJC	
482	Long Range Alpha Detector	Demo Summary		01	00	01	99	99	99	SJC	
483	Mobile Aqueous Borne Ozone Laundry Service	Demo Summary		01	00	08	36	99	99	SJC	
484	Nomad Facility Characterization	Demo Summary		01	00	01	99	99	99	SJC	
485	Nomad Waste Characterization	Demo Summary		02	00	08	99	99	99	SJC	
486	Off-site Laundry Service for Reusable Clothing	Demo Summary		01	00	08	36	99	99	SJC	
487	Photogrammetry	Demo Summary		01	00	01	99	99	99	SJC	
488	Pipe Walker	Demo Summary		01	02	01	02	99	99	SJC	
489	Plastic Pellet Blasting	Demo Summary		01	00	02	99	99	99	SJC	
490	Quik-Solid Superabsorbent Polymer	Demo Summary		02	07	08	99	99	99	SJC	
491	Radscan	Demo Summary		01	00	01	99	99	99	SJC	
492	Thermal Wear RiteCharge	Demo Summary		01	00	08	36	99	99	SJC	
494	Water Soluble Polymers for RCRA Waste Removal	TMS	1439	02	00	08	99	99	99	SJC	
495	Self-assembled Monolayers on Mesoporous Supports	TMS	1447	02	00	08	99	99	99	SJC	
496	Mercury Amalgamation and Stabilization	TMS	1630	02	00	08	99	99	99	SJC	
497	Mercury Removal from Solid Mixed Waste	TMS	1708	02	05	08	99	99	99	SJC	
498	Rapid Surface Sampling and Archive Record Sys	TMS	96	01	01	01	01	99	99	SJC	
498	Rapid Surface Sampling and Archive Record Sys	TMS	96	01	02	01	01	99	99	SJC	
499	Small Pipe Characterization System	TMS	43	01	02	01	02	99	99	SJC	
500	In Situ Chemical Treatment of Asbestos	TMS	73	02	04	08	42	99	99	SJC	
501	Internal Duct Characterization System	TMS	42	01	02	01	02	99	99	SJC	
502	Anion Exchange Resin Development for Technitium Removal	TMS	400	02	07	08	39	99	99	SJC	
503	Inductively Coupled Plasma-Mass Spectrometry for Analysis of Microliter Samples and Solids	TMS	133	01	00	01	99	99	99	SJC	
504	DISPIM (In Situ Pu Inventory Monitor)	ODS Table 0.9.1		02	05	08	99	99	99	SJC	
505	TRU Piece/Package Monitor	ODS Table 0.9.1		02	05	08	99	99	99	SJC	
506	TRUCHEM decontamination	ODS Table 0.9.1		01	00	02	99	99	99	SJC	
507	Electrolytic Decontamination	ODS Table 0.9.1		01	00	02	99	99	99	SJC	
508	Robotics Size Reduction Facility	ODS Table 0.9.1		01	00	03	99	99	99	SJC	
509	Plasma Arc Torch w/Enhanced Fume Control	ODS Table 0.9.1		01	02	04	99	99	99	SJC	
510	Beryllium Swipe Monitor	ODS Table 0.9.1		01	01	08	34	99	99	SJC	
510	Beryllium Swipe Monitor	ODS Table 0.9.1		01	02	08	34	99	99	SJC	
511	SS&C Cementation	ODS Table 0.9.1		02	00	08	99	99	99	SJC	
512	Ash Cementation	ODS Table 0.9.1		02	00	08	99	99	99	SJC	
513	Vertical Calciner	ODS Table 0.9.1		02	07	08	33	99	99	SJC	
514	Reducing grout	ODS Table 0.9.1		02	00	08	99	99	99	SJC	
515	Diamond wire cutting	ODS Table 0.9.1		01	01	03	08	99	99	SJC	
516	Beryllium Air Monitor	ODS Table 0.9.1		01	00	08	34	99	99	SJC	
517	Automatic Demolition Dust Suppression System	TMS, ITSR-2154	2154	01	01	08	34	99	99	MAM	
518	Compact Subsurface Investigation System	TMS	2153	02	05	01	99	99	99	MAM	
519	Concrete Diamond Grinder	TMS, ITSR-2102	2102	01	01	02	07	99	99	MAM	
519	Concrete Diamond Grinder	TMS, ITSR-2102	2102	01	01	02	08	99	99	MAM	
520	Concrete Spaller	TMS, ITSR-2152	2152	01	01	02	08	99	99	MAM	
521	Liquid-Nitrogen Cooled Diamond-Wire Concrete Cutting	TMS	2107	01	01	03	99	99	99	MAM	
522	Reactor Stabilizer	TMS, ITSR-1839	1839	01	99	08	34	99	99	MAM	
523	High Pressure Water Cleaning	ITSR-1780		01	02	02	10	04	99	MAM	
524	Manual Alpha-Beta (FM-4G)	ITSR-1798		01	01	01	01	99	99	MAM	
525	Manual Alpha-Beta (Electra NE)	ITSR-1798		01	01	01	01	99	99	MAM	

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526	Conng/Off-Site Analysis	ITSR-2098		01	01	01	01	99	99	MAM	
527	Manual Gamma (Eberline RO-7)	ITSR-1840		01	01	01	01	12	99	MAM	
527	Manual Gamma (Eberline RO-7)	ITSR-1840		01	02	01	01	12	99	MAM	
527	Manual Gamma (Eberline RO-7)	ITSR-1840		01	03	01	01	12	99	MAM	
528	Hydraulic Shear	ITSR-1948		01	02	03	17	10	99	MAM	
528	Hydraulic Shear	ITSR-1948		01	02	03	18	10	99	MAM	
529	Concrete Dust Suppression	ITSR-2154		01	01	06	34	99	99	MAM	
530	Manual Radiologic (Gamma) Survey	ITSR-1793		01	01	01	01	12	99	MAM	
530	Manual Radiologic (Gamma) Survey	ITSR-1793		01	02	01	01	12	99	MAM	
530	Manual Radiologic (Gamma) Survey	ITSR-1793		01	03	01	01	12	99	MAM	
531	Radiation Detection Probe	ITSR-1948		01	00	01	01	99	99	MAM	
532	Hand Held Floor Contamination Monitor	ITSR-1942		01	01	01	01	01	99	MAM	
533	Manual Wall Radiologic Survey	ITSR-1476		01	01	02	08	01	05	MAM	
534	Spray-On Coating	ITSR-1839		01	99	06	34	99	99	MAM	
535	Portable Generator	ITSR-1795		01	00	06	99	99	99	MAM	
536	Restore Existing Plant Electrical	ITSR-1795		01	00	06	99	99	99	MAM	
537	Hand Held Frisker with Swipes	ITSR-1999		01	01	01	01	01	99	MAM	

APPENDIX C

FACILITIES DATABASE STRUCTURE

Physical Data Model	
Project: D&D Needs Analysis	
Model : DATABASE EM_V2	
Author: EMO	Version 1 10/14/98

Stand-alone (not related) tables used for Model.

Assumptions	
AssumptionNo	<pk>
BlockNo	
Assumption	

DataSources	
SourceNo	
BlockNo	
Category	
DataSource	
Info	

DefaultValues	
DefaultID	<pk>
ThicknessHRTthin	
ThicknessHRTthick	
ThicknessMRTthin	
ThicknessMRTthick	
ThicknessUnRTthin	
ThicknessUnRTthick	
AreaLenSmallSS	
AreaLenLgSS	
WLenSmallSS	
WLenLgSS	
AreaLenT	
WLenT	
AreaLenOSP	
AreaLenISP	
WLenSP	
AreaLenOLP	
AreaLenILP	
WLenLP	
AreaLenID	
AreaLenOD	
WLenD	
AreaBoxI	
AreaBoxO	
WBox	
WBrick	
WLenSmallLag	
WLenLargeLag	
WAreaInsul	
WAreaT	

Query created for use in Model

PBSFacilityRS (*)	
PBS_FRS.PBS_ID	
FacilityRS.FRS_ID	
FacilityRS.FRS_Code	
FacilityRS.Description	
FacilityRS.Category	
FacilityRS.PlannedAssessmentDate	
FacilityRS.ActualAssessmentDate	
FacilityRS.PlannedCompletionDate	
FacilityRS.ActualCompletionDate	
FacilityRS.FloorSpace	
FacilityRS.DDSStatusID	
FacilityRS.Demolish	
FacilityRS.PercAreaContWalls	
FacilityRS.PercAreaContCeilings	
FacilityRS.PercAreaContFloors	
FacilityRS.PercHotSpotsWalls	
FacilityRS.PercHotSpotsCeilings	
FacilityRS.PercHotSpotsFloors	
FacilityRS.PercAreaContT	
FacilityRS.PercAreaContOSP	
FacilityRS.PercAreaContISP	
FacilityRS.PercAreaContOLP	
FacilityRS.PercAreaContILP	
FacilityRS.PercAreaContOD	
FacilityRS.PercAreaContID	
FacilityRS.PercAreaContOGB	
FacilityRS.PercAreaContIGB	
FacilityRS.PercActiveBricks	
FacilityRS.SecWasteDispCost	
FacilityRS.CDDisposalCost	
FacilityRS.PercAreaContSmallSS	
FacilityRS.PercAreaContLargeSS	
FacilityRS.PercContLeadBrick	
FacilityRS.DisposalCostLeadBrick	

Tables used in work package exercises

PBS_WorkPkg	
WorkPackageNo	<pk>
PBS_ID	<pk>

WorkPackages	
WorkPackageNo	<pk>
WorkPackageTitle	

SHEET2	
wORKpKGnO	
pbsFIELDCODE	
Field3	

Temporary tables used in exercises

tblKeepIDs	
ID	

Ughts	
ID	<pk>
Site_Need_ID	
Light	

tblIDDeplOpps	
ID	
PBS_ID	
NeedPBSID	
PBS_No_FieldCode	
PBS_Title	
High_Visibility	
NeedScheduleStart	
NeedScheduleEnd	
DeploymentPlan	
ProjDeploymentDate	
TechnologyTitle	
DataSourceID	

WasteStream	
OpsOfficeID	<pk>
WS Code	<pk>
OpsOfficeSiteID	
OpsOffice	
SSL	
Geographic Site	
Waste Type	
WS Field ID	
WS Name	
Tech Risk	
Scope Risk	
Intersite Risk	

DeploymentOpp	
TechID	<pk>
ID	<pk>
TechnologyTitle	
SiteNeedID	
DeploymentPotential	
Comment	

APPENDIX D

**COMPARISON OF MODEL EQUATIONS
AND DATABASE VARIABLES**

Comparison of Model Equation and Database Variable Names

Model Equation Variable Name	Database Variable Name	Units	Variable Description
DefaultValues Table			
thickness HR Thin	ThicknessHRThin	m	Average thickness of heavily reinforced concrete less than or equal to 6" thick. The default value is 0.152 m (6").
thickness HR Thick	ThicknessHRThick	m	Average thickness of heavily reinforced concrete greater than 6" thick. The default value is 0.305 m (12").
thickness MR Thin	ThicknessMRThin	m	Average thickness of moderately reinforced concrete less than or equal to 6" thick. The default value is 0.152 m (6").
thickness MR Thick	ThicknessMRThick	m	Average thickness of moderately reinforced concrete greater than 6" thick. The default value is 0.305 m (12").
thickness UnR Thin	ThicknessUnRThin	m	Average thickness of unreinforced concrete less than or equal to 6" thick. The default value is 0.152 m (6").
thickness UnR Thick	ThicknessUnRThick	m	Average thickness of unreinforced concrete greater than 6" thick. The default value is 0.305 m (12").
area/length small SS	AreaLenSmallSS	sq-m/m	Average unit perimeter area for structural steel members less than or equal to 8" depth. The default value (0.689) is based on a W shape I-beam, 6" depth, 4" flange, designation 6 x 12.
area/length large SS	AreaLenLgSS	sq-m/m	Average unit perimeter area for structural steel members greater than 8" depth. The default value (1.39) is based on a W shape I-beam, 12" depth, 8" flange, designation 12 x 45.
weight/length small SS	WtLenSmallSS	kg/m	Average unit weight for structural steel members less than or equal to 8" depth. The default value (17.9) is based on a W shape I-beam, 6" depth, 4" flange, designation 6 x 12.
weight/length large SS	WtLenLgSS	kg/m	Average unit weight for structural steel members greater than 8" depth. The default value (67.0) is based on a W shape I-beam, 12" depth, 8" flange, designation 12 x 45.
area/length T	AreaLenT	sq-m/m	Average outside unit area for instrument tubing. The default value (0.0199) is based on 1/4" OD, 0.036" wall thickness, stainless steel tubing.
weight/length T	WtLenT	kg/m	Average unit weight for instrument tubing. The default value (0.147) is based on 1/4" OD, 0.036" wall thickness, stainless steel tubing.
area/length ISP	AreaLenISP	sq-m/m	Average outside unit area for small piping. The default value (0.321) is based on 4" schedule 40 steel pipe.
area/length OSP	AreaLenOSP	sq-m/m	Average outside unit area for small piping. The default value (0.359) is based on 4" schedule 40 steel pipe.
weight/length SP	WtLenSP	kg/m	Average unit weight for small piping. The default value (16.1) is based on 4" schedule 40 steel pipe.
area/length ILP	AreaLenILP	sq-m/m	Average inside unit area for large piping. The default value (0.) is based on 10" schedule 40 steel pipe.

Comparison of Model Equation and Database Variable Names

Model Equation Variable Name	Database Variable Name	Units	Variable Description
area/length OLP	AreaLenOLP	sq-m/m	Average outside unit area for large piping. The default value (0.858) is based on 10" schedule 40 steel pipe.
weight/length LP	WtLenLP	kg/m	Average unit weight for large piping. The default value (60.3) is based on 4" schedule 40 steel pipe.
area/length ID	AreaLenID	sq-m/m	Average inside unit area for ducts. The default value (1.83) is based on ducts measuring 18" x 18".
area/length OD	AreaLenOD	sq-m/m	Average outside unit area for ducts. The default value (1.83) is based on ducts measuring 18" x 18".
weight/length D	WtLenD	kg/m	Average unit weight for ducts. The default value (23.8) is based on ducts measuring 18" x 18" and constructed of 16 gage galvanized sheet steel.
area/box I	AreaBoxI	sq-m/box	Average inside unit area for glove boxes. The default value (4.88) is based on glove boxes measuring 48" wide x 30" deep x 30" high.
area/box O	AreaBoxO	sq-m/box	Average outside unit area for glove boxes. The default value (4.88) is based on glove boxes measuring 48" wide x 30" deep x 30" high.
weight/box	WtBox	kg/box	Average unit weight for glove boxes. The default value (91.3) is based on glove boxes measuring 48" wide x 30" deep x 30" high and constructed of 13 gage flat rolled steel.
weight/brick	WtBrick	kg/brick	Average weight of lead brick. The default value is based on brick with dimensions of 2" x 4.5" x 9".
weight/length lagging SP	WtLenSmallLag	kg/m	Average unit weight for asbestos lagging for small pipes. The default value is based on 4" steel pipe with 2" thick insulation.
weight/length lagging LP	WtLenLargeLag	kg/m	Average unit weight for asbestos lagging for large pipes. The default value is based on 10" steel pipe with 3" thick insulation.
weight/area insulation	WtAreaInsul	kg/sq-m	Average weight of asbestos insulation per square meter of insulation. The default value is based on an insulation thickness of 3".
weight/area T	WtAreaT	kg/sq-m	Unit weight of transite insulation. The default value is based on transite panels with a thickness of 1/2".
FacilityRS Table			
Size	FloorSpace	sq-m	The total floor area for the specific facility.
% area contaminated walls	PercAreaContWalls	%	The percent of the facility walls that are contaminated.
% area contaminated ceilings	PercAreaContCeilings	%	The percent of the facility ceilings that are contaminated.
% area contaminated floors	PercAreaContFloors	%	The percent of the facility floors that are contaminated.
sec. waste disposal cost	SecWasteDispCost	\$/kg	Cost for on-site disposal of contact handled (secondary) waste.

Comparison of Model Equation and Database Variable Names

Model Equation Variable Name	Database Variable Name	Units	Variable Description
CD disposal cost	CDDisposalCost	\$/kg	Cost for on-site disposal of construction debris.
% hot spots walls	PercHotSpotsWalls	%	The percent of hot spots in concrete walls.
% hot spots ceilings	PercHotSpotsCeilings	%	The percent of hot spots in concrete ceilings.
% hot spots floors	PercHotSpotsFloors	%	The percent of hot spots in concrete floors.
% area contaminated small SS	PercAreaContSmallSS	%	The percent of the total small structural steel surface area that is contaminated.
% area contaminated large SS	PercAreaContLargeSS	%	The percent of the total large structural steel surface area that is contaminated.
% area contaminated T	PercAreaContT	%	The percent of the total outside surface of all instrument tubing that is contaminated.
% area contaminated ISP	PercAreaContISP	%	The percent of the total inside surface of all small piping that is contaminated.
% area contaminated OSP	PercAreaContOSP	%	The percent of the total outside surface of all small piping that is contaminated.
% area contaminated ILP	PercAreaContILP	%	The percent of the total inside surface of all large piping that is contaminated.
% area contaminated OLP	PercAreaContOLP	%	The percent of the total outside surface of all large piping that is contaminated.
% area contaminated OD	PercAreaContOD	%	The percent of the total outside surface of all ducting that is contaminated.
% area contaminated ID	PercAreaContID	%	The percent of the total inside surface of all ducting that is contaminated.
% area contaminated OGB	PercAreaContOGB	%	The percent of the total outside surface of all glove boxes that are contaminated.
% area contaminated IGB	PercAreaContIGB	%	The percent of the total inside surface of all glove boxes that are contaminated.
% lead bricks contaminated	PercContLeadBrick	%	The percent of all lead bricks that are rad contaminated
% active bricks	PercActiveBricks	%	The percent of all lead bricks that have become activated and can not be decontaminated.
disposal cost lead brick	DisposalCostLeadBrick	\$/kg	The cost for on-site disposal of decontaminated lead brick.
FacilityRSInorg Table			
contaminant factor inorganic	ContFactInorg	%	The percent of contaminated area inorganic contaminated
transport cost inorganic	TransCostInorg	\$/km-kg	Unit cost for transportation of inorganic contaminated primary waste to off-site disposal.
distance inorganic	DistanceInorg	km	Distance to transport inorganic contaminated primary waste for off site disposal.

Comparison of Model Equation and Database Variable Names

Model Equation Variable Name	Database Variable Name	Units	Variable Description
primary waste disposal cost inorganic	PrimWstDispCostInorg	\$/kg	Cost for off-site disposal of inorganic contaminated primary waste.
depth contamination walls&ceilings inorganic	ConcDepthW/CInorg	cm	The depth of inorganic contamination for concrete walls and ceilings.
depth contamination floors inorganic	ConcDepthFloorsInorg	cm	The depth of inorganic contamination for concrete floors.
FacilityRSMerc Table			
contaminant factor mercury	ContFactMerc	%	The percent of contaminated area mercury contaminated
transport cost mercury	TransCostMerc	\$/km-kg	Unit cost for transportation of mercury contaminated primary waste to off-site disposal.
distance mercury	DistanceMerc	km	Distance to transport mercury contaminated primary waste for off-site disposal.
primary waste disposal cost mercury	PrimWstDispCostMerc	\$/kg	Cost for off-site disposal of mercury contaminated primary waste.
depth contamination walls&ceilings mercury	ConcDepthW/CMerc	cm	The depth of mercury contamination for concrete walls and ceilings.
depth contamination floors mercury	ConcDepthFloorsMerc	cm	The depth of mercury contamination for concrete floors.
FacilityRSOrg Table			
contaminant factor organic	ContFactOrg	%	The percent of contaminated area organic contaminated
transport cost organic	TransCostOrg	\$/km-kg	Unit cost for transportation of organic contaminated primary waste to off-site disposal.
distance organic	DistanceOrg	km	Distance to transport organic contaminated primary waste for off-site disposal.
primary waste disposal cost organic	PrimWstDispCostOrg	\$/kg	Cost for off-site disposal of organic contaminated primary waste.
depth contamination walls&ceilings organic	ConcDepthW/COrg	cm	The depth of organic contamination for concrete walls and ceilings.
depth contamination floors organic	ConcDepthFloorsOrg	cm	The depth of organic contamination for concrete floors.
FacilityRSRad Table			
contaminant factor rad	ContFactRad	%	The percent of contaminated area rad contaminated
transport cost rad	TransCostRad	\$/km-kg	Unit cost for transportation of rad contaminated primary waste to off-site disposal.
distance rad	DistanceRad	km	Distance to transport rad contaminated primary waste for off-site disposal.
primary waste disposal cost rad	PrimWstDispCostRad	\$/kg	Cost for off-site disposal of rad contaminated primary waste.

Comparison of Model Equation and Database Variable Names

Model Equation Variable Name	Database Variable Name	Units	Variable Description
depth contamination walls&ceilings rad	ConcDepthW/CRad	cm	The depth of rad contamination for concrete walls and ceilings.
depth contamination floors rad	ConcDepthFloorsRad	cm	The depth of rad contamination for concrete floors.
FacilityType Table			
Height	Height	m	Height for facility type.
Wall Multiplier	WallMultiplier		Number of corridors for facility type.
Small Structural Steel Factor	SmallSSFactor	m	Spacing between small structural steel members. Small structural steel are horizontal members that support ceiling.
Large Structural Steel Factor	LgSSFactor	m	Spacing between large structural steel members on two sides of building. Large structural steel members are vertical beams.
Tubing Factor	TubingFactor	m/sq-m	Length of instrument tubing per square meter of floor area for facility type.
Small Pipe Factor	SPFactor	m/sq-m	Length of piping less than or equal to nominal 4" diameter, per square meter of floor area for facility type.
Large Pipe Factor	LPFactor	m/sq-m	Length of piping greater than nominal 4" diameter, per square meter of floor area for facility type.
Ducting Factor	DFactor	m/sq-m	Length of ducting per square meter of floor area for facility type.
Lead Brick Factor	BrickFactor	No. Bricks/sq-m	Number of bricks per square meter of floor area for facility type.
Box Factor	BoxFactor	No. Boxes/sq-m	Number of glove boxes per square meter of floor area for facility type.
Small Pipe Lagging Factor	SPLaggingFactor	m/m	Meters of small pipe asbestos lagging per meter of small pipe for facility type.
Large Pipe Lagging Factor	LPLaggingFactor	m/m	Meters of large pipe asbestos lagging per meter of large pipe for facility type.
Transite Factor	TransFactor	sq-m/sq-m	Area of transite insulation per square meter of floor area for facility type.
% area concrete wall	PercAreaConcreteWalls	%	percent of total wall area made of concrete.
% area concrete floor	PercAreaConcreteFloors	%	percent of total floor area made of concrete.
% area concrete ceiling	PercAreaConcreteCeilings	%	percent of ceiling area made of concrete.
% area HR Thin wall	PercAreaHRThinWalls	%	percent of concrete wall that is heavily reinforced and less than or equal to 6" thick.
% area HR Thick wall	PercAreaHRThickWalls	%	percent of concrete wall that is heavily reinforced and greater than 6" thick.
% area MR Thin wall	PercAreaMRThinWalls	%	percent of concrete wall that is moderately reinforced and less than or equal to 6" thick.

Comparison of Model Equation and Database Variable Names

Model Equation Variable Name	Database Variable Name	Units	Variable Description
% area MR Thick wall	PercAreaMRThickWalls	%	percent of concrete wall that is moderately reinforced and greater than 6" thick.
% area UnR Thin wall	PercAreaUnRThinWalls	%	percent of concrete wall that is unreinforced and less than or equal to 6" thick.
% area UnR Thick wall	PercAreaUnRThickWalls	%	percent of concrete wall that is unreinforced and greater than 6" thick.
% area HR Thin floor	PercAreaHRThinFloors	%	percent of concrete floor that is heavily reinforced and less than or equal to 6" thick.
% area HR Thick floor	PercAreaHRThickFloors	%	percent of concrete floor that is heavily reinforced and greater than 6" thick.
% area MR Thin floor	PercAreaMRThinFloors	%	percent of concrete floor that is moderately reinforced and less than or equal to 6" thick.
% area MR Thick floor	PercAreaMRThickFloors	%	percent of concrete floor that is moderately reinforced and greater than 6" thick.
% area UnR Thin floor	PercAreaUnRThinFloors	%	percent of concrete floor that is unreinforced and less than or equal to 6" thick.
% area UnR Thick floor	PercAreaUnRThickFloors	%	percent of concrete floor that is unreinforced and greater than 6" thick.
% area HR Thin ceiling	PercAreaHRThinCeilings	%	percent of concrete ceiling that is heavily reinforced and less than or equal to 6" thick.
% area HR Thick ceiling	PercAreaHRThickCeilings	%	percent of concrete ceiling that is heavily reinforced and greater than 6" thick.
% area MR Thin ceiling	PercAreaMRThinCeilings	%	percent of concrete ceiling that is moderately reinforced and less than or equal to 6" thick.
% area MR Thick ceiling	PercAreaMRThickCeilings	%	percent of concrete ceiling that is moderately reinforced and greater than 6" thick.
% area UnR Thin ceiling	PercAreaUnRThinCeilings	%	percent of concrete ceiling that is unreinforced and less than or equal to 6" thick.
% area UnR Thick ceiling	PercAreaUnRThickCeilings	%	percent of concrete ceiling that is unreinforced and greater than 6" thick.
% area metal wall	PercAreaMetalWalls	%	percent of total wall area made of metal.
% area metal ceiling	PercAreaMetalCeilings	%	percent of total ceiling area made of metal.
% area wood wall	PercAreaWoodWalls	%	percent of total wall area made of wood.
% area wood floor	PercAreaWoodFloors	%	percent of total floor area made of wood.
% area wood ceiling	PercAreaWoodCeilings	%	percent of total ceiling area made of wood.
cost/yr-area SM	CostYrAreaSM	\$/yr-sq-m	Yearly cost for S&M per square meter for facility type.
units/area HM	UnitsAreaWSH	units/sq-m	Number of hazards monitoring devices per square meter required for facility type.

Comparison of Model Equation and Database Variable Names

Model Equation Variable Name	Database Variable Name	Units	Variable Description
people/area PME/PPE	PeopleAreaPME	people/sq-m	Number of workers per square meter required for D&D for facility type.
units/area SCAF	UnitsAreaSCAF	units/sq-m	Number of scaffolds required per square meter for facility type.
units/area EPL	UnitsAreaEPL	units/sq-m	Number of electrical power & lighting systems per square meter for facility type.
units/area VF	UnitsAreaVF	units/sq-m	Number of ventilation & HEPA filtration systems per square meter for facility type.
PBS Table			
PBS Start	ProjectStartDate	Year	Start date for PBS.
PBS End	ProjectEndDate	Year	End date for PBS.
TechCost Table			
Cost Avg	CostAvg	\$/sq-m, \$/cut, \$/box, \$/m, \$/hr	This cost will depend upon the technology and its application.
deployment cost	DeploymentCost	\$	Per-job cost of setup and takedown (and decontamination where necessary) for technology.
thickness removed per pass	ThickPass	cm	Depth of concrete or paint removed in a single pass of a decontamination technology.
sec. waste gen. Rate	SecWasteGenRate	kg/hr	Mass rate at which secondary waste (grit, water, filters, lead shot, etc.) is generated by decontamination technology.
production rate	ProductionRate	sq-m/hr	Rate at which decontamination technology removes concrete or contaminants.
units/person	UnitsPerson	units/person	Number of Personnel Monitoring Equipment and Personnel Protective Equipment systems per operator person.

Variables in the DefaultValues DB Table are a function of the facility type. These variables are underlined in the D&D Model Guidance.

Variables in the FacilityType DB Table are a function of the facility type. These variables are underlined in the D&D Model Guidance.

Variables in the FacilityRS DB Table are a function of the specific facility. These variables are **bolded** in the D&D Model Guidance.

Variables in the FacilityRSInorg DB Table are a function of the specific facility. These variables are **bolded** in the D&D Model Guidance.

Variables in the FacilityRSMerc DB Table are a function of the specific facility. These variables are **bolded** in the D&D Model Guidance.

Variables in the FacilityRSOrg DB Table are a function of the specific facility. These variables are **bolded** in the D&D Model Guidance.

Variables in the FacilityRSRad DB Table are a function of the specific facility. These variables are **bolded** in the D&D Model Guidance.

Variables in the PBS DB Table are a function of the specific facility. These variables are **bolded** in the D&D Model Guidance.

Variables in the TechCost DB Table are a function of the specific technology. These variables are *italicized* in the D&D Model Guidance.

APPENDIX D

A4. ASSUMPTIONS

The following assumptions were made during the generation of the technology list

Description of Deployment (PDT) Codes used in Technology Evaluations

Level	CATEGORIES	Code
	Blank (Insufficient information/no applicable sub categories)	99
00	<u>Decommissioning Categories</u>	
	Other	00
	Facility Construction	01
	Decommissioning Residue	02
01	<u>Material Types</u>	
	Other	00
	Concrete/Masonry/Brick	01
	Metal	02
	Wood	03
	Asbestos/Transite	04
	Solids/Debris	05
	Sludge	06
	Liquid	07
02	<u>Process Types</u>	
	Characterization	01
	Decontamination	02
	Cutting & Sizing	03
	Demolition	04
	Material Disposition	05
	Worker Safety & Health	06
	Remote Tooling/Automation	07
	Treatment	08
03	<u>Process Sub-Types</u>	
	Characterization	
	Large/Complex Areas	01
	Internal Characterization (pipes, ducts, process equip)	02
	Inaccessible Areas (confined space, behind walls, containers)	03
	Structural Integrity Inspection	04
	Buried Objects	05
	?????	06
	Concrete Decon Sub-Types	
	Floors	07
	Walls & Ceilings	08
	Metal Decon Sub-Types	
	Lead Bricks	09
	Equip/Glove Boxes/Dismantled Piping	10
	Sheet Metal/Structural Steel/ Steel Liners	11
	System Piping/Tank Internals	12
	Concrete Cutting & Sizing Sub-Types	
	Heavily reinforced	13
	Unreinforced	14
	Walls & Floors	15
	Metal Cutting & Sizing Sub-Types	
	Instrument Tubing	16
	Large Diameter Piping	17
	Small Diameter Piping	18
	Flat Stock & Pressure Vessels	19
	Structural Steel	20
	Lead Bricks	21
	Demolition Sub-Types	
	Reinforced	22
	Lightly Reinforced	23
	Non-Reinforced	24
	Stack	25
	Structure	26
	Sheathing Intact	27
	Sheathing Removed	28
	Disposition Sub-Types	
	Handling	29
	Sorting	30
	Packaging	31
	Recycle	32
	Waste Minimization/Disposal	33

	Worker Safety & Health Sub-Types	
	Hazards Monitoring/Control (Including Air Monitoring)	34
	Personnel Monitoring Equipment	35
	Personnel Protective Equipment	36
	Treatment Sub-Types	
	Organic Contaminants	37
	Inorganic Contaminants	38
	Radioactive Contaminants	39
	Mixed LLW/Organic	40
	Mixed LLW/Inorganic	41
	Asbestos/Transite	42
	Lead	43
04	<u>Condition Categories</u>	
	Concrete Decon Categories	
	Large Areas	01
	Small Areas	02
	Metal Decon Categories (equip/glove boxes/dismantled piping)	
	Large Components	03
	Small Components	04
	Metal Decon Categories (sheet metal/structural steel. Stainless steel liners)	
	Floors	05
	Walls & Ceilings	06
	Metal Decon Categories (system piping/Tank Internals)	
	Stainless & High Alloy Steels (Reactor Systems)	07
	Carbon/Low Alloy Steels	08
	Metal Cutting Categories	
	Thermal	09
	Non-thermal	10
	Characterization	
	Loose Contamination	11
	Fixed Contamination	12
	Volumetric Contamination	13
05	<u>Condition Sub-Categories</u>	
	Decon Sub-Categories	
	Painted Surfaces	01
	Depth <1/32"	02
	Depth 1/32" to 1/8"	03
	Depth 1/8" to 1/4"	04
	Depth >= 1/4"	05
	Cracks/Crevices	06

TMS LIST

- 1 **General Assumptions**
- 2 Once a technology was identified from the Industry Partners program, only the data within TMS was entered
- 3 If a commercial point of contact was available it was used, if not, the Project Manager or Principal Investigator was used
- 4 If a technology was terminated and it is not commercially available it was removed from consideration. Note: There was at least one technology terminated that still became commercial.
- 5 All technologies within the TMS were assumed alternative
- 6 For TMS technologies, only those commercially available were considered available
- 7 If date of availability not available, entered the planned date for Gate 6
- 8 Some technologies list Gate 6 dates that have passed but the TMS data has not been updated
- 9 The TMS listing includes all D&D TMS technologies, Industry partners technologies, and any other LSDP selected technologies
- 10 **PDT Assumptions**
- 11 Laser devices can only clean coatings on concrete or metal
- 12 Electrokinetic techniques will penetrate to depths greater than 1/4 inch
- 13 If spaces are left blank (not including after area is complete) it is believed that the technology is too general to be put into one category or sufficient information is not present in the TMS
- 14 The PDT codes are applied in a fairly broad manner to be more inclusive

- 13 Where applicable, those entering this data have erred on putting in too many PDTs (stretching the knowledge) rather than the opposite
- 14 The PDT codes used do not fit all technologies, technologies were not forced into an PDT, but rather the information was left blank.
- 15 Some TMS #'s contain multiple technologies, for this study they were considered a single technology.
- 16 Visually detectable buildup inside a pipe was considered loose contamination
- 17 Fixed contamination consisted of contamination within the original coatings and surfaces.
- 18 Robot Task Space Handler: There is no description of this technology in the TMS

PAM LIST

- 1 Chemical leaching (Section 3.16.7 of Non-Thermal Treatment alternatives) is not a single technology in the PAM but is a classification of technologies.
- 2 Chemical leaching technologies suitable for ex-situ treatment of solids/debris and sludge were taken from Section 3.1 Chemical Extraction of the Decontamination Alternatives. Best engineering judgement was used during the selection.
- 3 Chemical decontamination (Section 3.16.6 of Non-Thermal Treatment alternatives) is not a single technology in the PAM but is a classification of technologies.
- 4 Chemical decontamination technologies suitable for ex-situ treatment of solids/debris were taken from Section 3.1 Chemical Extraction of the Decontamination Alternatives. Best engineering judgement was used during the selection.
- 5 Grit/water blasting/steam technologies suitable for ex-situ treatment of solids/debris with asbestos or lead contaminants, or surface contamination, were taken from Section's 3.6 (Vacuuming/Blasting) and 3.7 (Washing) of the Decontamination Alternatives. Best engineering judgement was used during the selection.
- 6 The singular Landfills (Section 3.17.3 of Disposal alternatives) was divided into four Landfill types (RCRA, TSCA, Radioactive, and Mixed) for this database.
- 7 The same chemical leaching technologies selected for ex-situ treatment of solids/debris with organic contaminants were selected for ex-situ treatment of solids/debris with mixed LLW (containing organic contaminants). It was presumed that the intent was to remove the hazardous component (organic) leaving a solids/debris LLW.
- 8 The same chemical leaching technologies selected for ex-situ treatment of solids/debris with inorganic contaminants were selected for ex-situ treatment of solids/debris with mixed LLW (containing inorganic contaminants). It was presumed that the intent was to remove the hazardous component (inorganic) leaving a solids/debris LLW.
- 9 The same chemical leaching technologies selected for ex-situ treatment of solids/debris with radioactive contaminants were selected for ex-situ treatment of sludge with radioactive contaminants. However, the PAM descriptions of the chemical leaching technologies do not indicate applicability to anything but solid surfaces (concrete, metal, etc.)
- 10 Chemical leaching technologies not considered for ex-situ treatment of solids/debris were those in which the PAM indicated that main use of the technology was removal of crud or metal (mainly iron) oxides. There was no description of crud. It was presumed that removal of "rust" was not of interest for a D&D activity. These technologies could be included if more detail is provided.
- 11 Regardless of the color of the box in the table, if the symbol in the box did not match that given in the legend above each table, it was not included within the acceptance criteria.
- 12 "Expansive Grout/Demolition Compounds" equivalent to "Expansive Grout"
- 13 "Backhoe Mounted Shears" equivalent to "Mobile Shears"
- 14 "Shot Blasting" equivalent to "Shot Blast Scabbling"
- 15 "Ultra-High Pressure Water" equivalent to "Ultra-High Pressure (UHP) Water Jet"
- 16 "Explosive Charge/Explosive Cutting" equivalent to "Explosive Cutting"
- 17 Table 4-1 lists only Chemical Foam. Treated as though Chemical Foam/Gel.
- 18 Table 4-5 lists Chemical Foam/Gel as two separate items. They had the same ratings and were therefore combined.
- 19 For Table 4-1, $\geq 1/8"$ reported in category 05 as 04 - $1/8"$ to $1/4"$; $< 1/8"$ reported in category 05 as 03 - $1/32"$ to $1/8"$
- 20 For Table 4-6, $1/32"$ reported in category 05 as 03 - $1/32"$ to $1/8"$; $< 1/32"$ reported in category 05 as 02 - $< 1/32"$
- 21 Category designations do not allow differentiation between 'Concrete Stack' and 'Brick/Cinder Block Stack' in Table 4-3.
- 22 Large area and Small area ratings can be different and are lost in category designations in Table 4-6.
- 23 No category 04 designation is assigned for 'Organic Deposits Containing U/TRU/FP' or 'Uranium Contamination' in Table 4-7.

PHOENIX LIST

The Phoenix Database is totally deficient with regards to technology description and use.

- 1 A Phoenix technology was considered "alternative" if the "Data Source" listed was other than 'vendor' or 'actual.'
- 2 Alternative technologies, which typically listed a National Laboratory as the vendor in the Phoenix, were considered not available pending better information.
- 3 Classifications for tubing and pipe for development of PDT codes were assumed to be:

instrument tubing	<1"
small diameter piping	<=8"
large diameter piping	>8"
- 4 Where possible, the tables in the PAMs data set were used as guidance for development of PDT codes.
- 5 The PDT codes for the safety and waste handling technologies were constructed based on the technology title, technology category, and material inclusions owing to the lack of any technology description.

Assumptions for technology applicability are provided below for the safety and waste handling technologies.

- 6 AMS Carbon Soil Auger- Sampling Equipment: not enough information
- 7 Analog Smart Portable: used for alpha and beta radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 8 Barrel Monitor-BRC Waste Analyzer : used for gamma radiation. Because of large size, assumed used for surface characterization of barrels which may contain gamma emitting decommission residue such as solids/debris, sludge, or liquid.
- 9 Beta Air Monitor- AMS-4: used for beta radiation. Assumed not easily portable based on 110V electrical requirement and size. Assumed used for monitoring air near and characterizing surface of large surface made of concrete/masonry/brick (wall, floor, or ceiling), metal (process equipment or piping), wood, asbestos/transite.
- 10 Bicon Micro Rem- Micro Rem: used for gamma radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 11 Cadet Vaneaxial- Ventilation Unit: assumed unit used to remove contaminated air from work space during facility D&D
- 12 Canberra Counting System- 2400: used for beta radiation. Assumed used for monitoring (worker safety and health) and characterization of surfaces (concrete/masonry/brick, metal, wood, asbestos/transite) by analysis of smears taken before and during facility D&D and characterization of smears from solids/debris after D&D. The Material Type designation of 00 refers to air.
- 13 Compactor- C6R 6-90-200
- 14 Dry Waste Hydraulic Compactor - Stock
- 15 Floor Monitor: Not enough information
- 16 Gas Flow Proportional Probe- HP-100A: not enough information
- 17 Gas Flow Proportional Probe-HP-100B : not enough information
- 18 Generator: Assumed used to provide power for Facility Construction activities such as characterization, decontamination, cutting and sizing, demolition, material disposition, worker safety and health.
- 19 GM Survey Meter- E-120: emitted radiation unknown. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 20 GM Survey Meter- E-140: emitted radiation unknown. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 21 GM Survey Meter- E-520: emitted radiation unknown. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 22 Half Mask Silicone Respirator - A-S5500: Assumed used for personal protection during Facility Construction activities including Decontamination, Cutting and Sizing, Demolition, Material Disposition.
- 23 Hand Probe- HP-190A : used for low energy beta radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 24 Hand Probe- HP-210AL : used for low energy beta radiation in low gamma background. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.

- 25 Hand Probe- HP-210L : used for low energy beta radiation in gamma background. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 26 Hand Probe- HP-260 : beta sensitive for personnel, table tops, floors, equipment. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 27 Hand Probe- HP-270 : used for gamma radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 28 Hand Probe- LEG-1 : low energy gamma probe for I-125. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 29 Hepa-Vacuum- Several Models: Assumed used for removing contaminants (fine powders and entrained liquids) from air during ventilation of Facility Construction area undergoing Decontamination, Cutting & Sizing, Demolition activities.
- 30 High Range Survey System- RO-7: emitted radiation unknown. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 31 HighTemp Vacuum Distillation of Pu Salt: Not enough information. Unsure whether to consider this Treatment (unknown contaminant) of a Decommissioning Residue or Material Disposition for Waste Minimization/Disposal of a Decommissioning Residue. The material type 00 refers to Pu salt.
- 32 HPGe Waste Barrel Analyzer- Barrel Monitor: used for gamma radiation. Because of large size, assumed used for surface characterization of barrels which may contain gamma emitting decommissioning residue such as solids/debris, sludge, or liquid.
- 33 In Situ Secondary Ion-Mass Spectrometry: Not enough information. Assumed applicable to Facility Construction and Decommissioning Residue material types alike. Phoenix has technology in safety category. Thus technology assumed for Worker Safety and Health (process type) with Hazards Monitoring/Control as sub-type.
- 34 Ionization Chamber- RO-2: used for beta and gamma radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 35 Jetair Model-3- Ventilation Unit: assumed unit used to remove contaminated air from work space during facility D&D.
- 36 Jetair Model-9- Ventilation Unit: assumed unit used to remove contaminated air from work space during facility D&D.
- 37 Light Aided Technologies: Not enough information.
- 38 Mini Scaler- MS-2: Not enough information.
- 39 Miniature-Sized, Real-Time Radiation Detector: Not enough information. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 40 Mobile Cart Air Sampler- MRV-0523CV: B50
- 41 Mobile Office- MO208: This does not seem to be a D&D specific technology.
- 42 Mobile Radiation Detection & Mapping System- Insitu Soil Assay System: Assumed system used for Hazards Monitoring/Control relative to Worker Safety & Health, and used for characterization of soils (and possibly buried objects) in-situ.
- 43 Personal Air Sampler - 08-430: Assumed system is used to check air (i.e. Hazards Monitoring/Control relative to Worker Safety & Health) inside structure or large equipment prior to entrance by worker engaged in Facility Construction D&D activity.
- 44 Plasma-Mass Spectrometry - ICP-MS: Not enough information.
- 45 Portable Generator- Wacker G 2.5A: Assumed that the generator is considered a remote tooling/automation technology than can be used for any Facility Construction D&D activity where power is required to operate Characterization, Decontamination, Cutting & Sizing, Demolition, Materials Disposition, Worker Safety & Health equipment.
- 46 Portable Generator- Wacker G 3.7A: Assumed that the generator is considered a remote tooling/automation technology than can be used for any Facility Construction D&D activity where power is required to operate Characterization, Decontamination, Cutting & Sizing, Demolition, Materials Disposition, Worker Safety & Health equipment.
- 47 Portable Generator- Wacker G 5.6A: Assumed that the generator is considered a remote tooling/automation technology than can be used for any Facility Construction D&D activity where power is required to operate Characterization, Decontamination, Cutting & Sizing, Demolition, Materials Disposition, Worker Safety & Health equipment.

- 48 Portable Generator- Wacker GS 5.6A: Assumed that the generator is considered a remote tooling/automation technology than can be used for any Facility Construction D&D activity where power is required to operate Characterization, Decontamination, Cutting & Sizing, Demolition, Materials Disposition, Worker Safety & Health equipment.
- 49 Portable Lead Analyzer- Pb Analyzer : used for paint, wood, surface dust, soil, air filters, smears. Assumed used to analyze for lead (as loose or fixed contaminant) on any painted surface (concrete, metal, wood) or on any solid/debris (soil, air filters, smears).generated by D&D activities.
- 50 Portable LIN-LOG Gas Proportional Alpha Counter- PAC-4G-3: used for alpha radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 51 Portable Ion Chamber- PIC-6B: used for gamma radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 52 Portable Micro "R" Meter - ASP-1/SPA-8: used for gamma radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 53 Portable Neutron rem Counter- ASP-1/NRD: used for neutron detection. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 54 Portable Photometer - TDA-2G: unknown emitted radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 55 Portable Ventilation System - NARED: assumed unit used to remove contaminated air from work space during facility D&D.
- 56 Radiation Monitor- RM-14S: unknown emitted radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 57 Radiation Monitor- RM-20: unknown emitted radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 58 Radiation Monitor- RM-21: unknown emitted radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 59 Radon Gas Meter - TN-Rn2000: used for radon; limited to air, soil, and water applications. Assumed used for air monitoring (worker safety and health) and characterization (air inside large areas) relative to Facility Construction activities and Decommissioning residues, and used for characterization of Decommissioning residues (solids/debris, sludge, liquid).
- 60 Radon WL Meter - TN-WL-02: used for radon; limited to inside buildings. Assumed used for air monitoring (worker safety and health) and characterization (air inside large areas) relative to Facility Construction activities.
- 61 Removing Plutonium from Waste Streams: no information in Phoenix. Assumed waste stream is a Decommissioning Residue and can be solids/debris, sludge, liquid. Treatment is required to remove radioactive contaminant (plutonium).
- 62 Rotary Vane Low Volume Air Sampler- VS23-0523CV: unknown contaminants of interest. Assumed can be used for Characterization of air in Large/complex area or for Worker Safety & Health Hazards Monitoring/Control during Facility Construction D&D.
- 63 Sampling Equipment- AMS 4130: not enough information.
- 64 Sampling Equipment- B-460.00: not enough information.
- 65 Scintillation Probe - SPA-8: not enough information: Assumed used for hazards monitoring in areas in which personnel will be working
- 66 Separation of HTO Using Membranes and Tritium Membrane Test
- 67 Shredder- Industrial Model : used for wood and scrap wood
- 68 Shredder- Mobile : used for steel, glass, concrete
- 69 Smart Portable- ESP-1: unknown emitted radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 70 Smart Portable- ESP-2: unknown emitted radiation. Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.

- 71 Sprung Instant Shelters: not enough information. Assumed shelter is used for personnel protection.
- 72 Tritium Contamination Monitor - 05-667: Assumed used for air monitoring (worker safety and health) near and characterization of concrete/masonry/brick, metal, wood, asbestos/transite surfaces before and during facility D&D and air monitoring near and characterization of solids/debris after D&D. The Material Type designation of 00 refers to air.
- 73 TRUclean Soil Decon System - TRUclean: Assumed technology used for treatment of soil (solids/debris, sludge) to removed TRU contaminants.
- 74 Vehicle Monitor-Remote w/ 2 Pylon Detectors-501A-5RP : not enough information.
- 75 Ventilation Unit- MAC-21 P/N FM37: assumed unit used to remove contaminated air from work space during facility D&D.
- 76 Ventilation Unit- PFX-1400A : assumed unit used to remove contaminated air from work space during facility D&D.
- 77 Ventilation Unit- Portaire Model- 4/6: assumed unit used to remove contaminated air from work space during facility D&D.
- 78 Waste Compactors- MPC-60 : Unit assumed used for disposal of decommissioning residue
- 79 Water Soluble Polymers for Actinide Removal: not enough information.

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APPENDIX E

**COST AND SECONDARY
WASTE INFORMATION**

Technology Name	Tech ID #	Alternative/ Baseline	Total Deployment Cost (\$)	Variable Cost	Units	Secondary Waste Generation (kg/hr)
Pipe Explorer	4	A	15592.00	188.87	\$/sq-m	
Steam Vacuum Cleaning	27	A	6895.00	16.50	\$/sq-m	200
Gamma-Ray Imaging System (PSC/BNFL RadScan 600)	31	A	14926.00	11.16	\$/sq-m	
MITUS	32	A	61656.00	108.00	\$/hr	
Mobile Automated Characterization System (Alpha-Beta)	34	A	3037.00	9.55	\$/sq-m	
High-Speed Clamshell Pipe Cutter	36	A	15881.00	1113.00	\$/cut	
Pipe Crawler	37	A	14764.00	321.73	\$/sq-m	
Rotary Peening with Captive Shot	39	A	1,672.00	53.20	\$/sq-m	4.85
Gamma Cam	42	A	18,804.00	52.00	\$/sq-m	
Centrifugal Shot Blast System	45	A	17,840.00	30.90	\$/sq-m	16.9
Position-Sensitive Radiation Monitoring (Surface Contamination Monitor)	52	A	12,282.00	7.73	\$/sq-m	
ROTO PEEN Scaler and VAC-PAC System	53	A	2,393.00	55.50	\$/sq-m	3.83
Self-Contained Pipe Cutting Shear	57	A	834.01	10.56	\$/cut	
Concrete Shaver	58	A	3,135.00	24.30	\$/sq-m	
Advanced Recyclable Media	61	A	1,768.00	143.00	\$/sq-m	1.42
Laser Induced Fluorescence	62	A	304.80	1.65	\$/sq-m	
In-Situ Object Counting System	63	A	571.00	10.20	\$/sq-m	
Remotely Operated Scabbling Technology	64	A	10,948.00	46.80	\$/sq-m	2.89
Remote Controlled Concrete Demolition System	65	A	11,587.00	105.00	\$/sq-m	
Pavement Breaker	102	B	565.00	1,640.00	\$/sq-m	
Piston Scabbler	103	B	3,209.00	84.10	\$/sq-m	
Circular Cutting Saw	128	B	401.93	9.95	\$/sq-m	
Diamond Wire	129	B	2,039.00	88.60	\$/sq-m	
Oxyacetylene Torch	143	B	3,962.00	896.00	\$/cut	
Porta Band Bandsaw	206	B	246.00	16.60	\$/cut	
German Hacksaw	207	B	246.00	31.39	\$/cut	
Mechanical Scabbling	245	B	2,597.00	116.00	\$/sq-m	5.45
Scaler	302	B	2,034.00	310.00	\$/sq-m	
Scabbler	381	B	2,093.00	311.00	\$/sq-m	
Concrete Grinder	519	A	2,014.00	118.00	\$/sq-m	
Concrete Spaller	520	A	867.00	326.00	\$/sq-m	
Liquid Nitrogen Cooled Diamond-Wire Concrete Cutting	521	A	7,107.00	126.66	\$/sq-m	
High Pressure Water Cleaning	523	B	2,417.00	20.50	\$/sq-m	490
Manual Alpha-Beta (FM-4G)	524	B	208.00	6.40	\$/sq-m	
Manual Alpha-Beta (Electra NE)	525	B	208.00	6.84	\$/sq-m	
Coring/Off-site Analysis	526	B	238.00	18.10	\$/sq-m	
Manual Gamma (Eberline RO-7)	527	B	3,297.00	153.00	\$/sq-m	
Hydraulic Shear	528	B	605.00	18.44	\$/cut	
Manual Radiologic Survey	530	B	918.00	2.14	\$/sq-m	
Hand Held Floor Contamination Monitor	532	B	1,356.00	16.97	\$/sq-m	
Portable Generator	535	B	82,179.00	149.48	\$/hr	
Restore Existing Plant Electrical System	536	B	329,399.00	65.25	\$/hr	
Hand-Held Frisker /w Swipes	537	B	0.00	17.90	\$/sq-m	