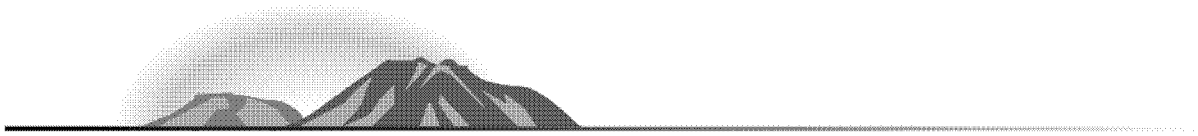


Appendix A

Assumptions

Appendix A

Assumptions for the Accelerated Retrieval Project

This appendix contains constraints and assumptions for the Accelerated Retrieval Project.

1. SCOPE ASSUMPTIONS

The scope assumptions consist of general assumptions, design assumptions, procurement assumptions, construction assumptions, operations and maintenance assumptions, and final disposition and closure assumptions. These are listed in the subsections below.

1.1 General Assumptions

Non-Time-Critical Removal Action. This project will be approved to proceed as a CERCLA Non-Time-Critical Removal Action and will adhere to the requirements of the National Contingency Plan and relevant EPA guidance documentation. An Engineering Evaluation/Cost Analysis and Action Memorandum will be developed as the CERCLA documentation basis for the project.

U.S. Department of Energy Order 413.3 and Critical Decisions. The project will not be conducted under DOE Order 413.3, "Program and Project Management for the Acquisition of Capital Assets."

Agency Interfaces and Reviews. Agency reviews are not required for a Non-Time-Critical Removal Action.

National Remedy Review Board. A review of the Engineering Evaluation/Cost Analysis by the National Remedy Review Board will not occur.

Organizational Agreement. Management and functional organizations will agree with the simplified approach to this project. The quality organization is not expected to agree or disagree with the approach.

Outlier Materials. Retrieval, characterization, packaging, interim storage, and disposal of any waste material (i.e., an outlier) that is not included in the documented safety basis is excluded work scope. Specifically, work associated with the evaluation and processing of a waste item through the Unreviewed Safety Question process that results in a revision to the safety basis is excluded scope. Outlier materials are assumed to include classified objects. Excavated materials may be returned to the pit and determined to be outliers.

OU 7-10 Interim Action Record of Decision (ROD). The OU 7-10 Interim Action ROD is not applicable. An Explanation of Significant Differences will be prepared to exit from this Interim ROD.

Completion of the OU 7-10 Glovebox Excavator Method Project. The OU 7-10 Glovebox Excavator Method Project will be successfully completed as planned and information on the condition of waste containers, TRU characteristics of the retrieved waste zone material, facility contamination levels, and migration of contaminants will be available early enough to be incorporated into the design, operation, and WIPP disposition concepts.

Applicability of Radioactive Waste Management Requirements. Because this is a CERCLA process, it is only necessary to demonstrate compliance with the substantive requirements of DOE O 435.1, "Radioactive Waste Management," and DOE Manual 435.1-1, "Radioactive Waste Management Manual," (i.e., administrative and procedural requirements do not apply). Area G of Pit 4 is a past disposal site rather than a new radioactive waste disposal facility, therefore the substantive LLW disposal requirements contained in that order and manual do not apply to the pit or to disposal of the materials returned after characterization or treatment. Therefore, the project is not required to prepare a performance assessment, including assessment of inadvertent intrusion, as identified in substantive requirements contained in DOE Manual 435.1-1. The substantive requirements in the DOE Order, other than the disposal requirements (e.g., treatment facility design and storage requirements) will apply and require implementation to relevant radioactive waste management activities.

Environmental Regulations. This project is a CERCLA removal action and will not be required to obtain environmental permits. The current land disposal restrictions are anticipated to function as applicable or relevant and appropriate requirements and will be documented in the Engineering Evaluation/Cost Analysis.

Decision Unit Volumes. Decision-unit volumes (i.e., batch sizes for which decisions are made) for overburden, waste zone material, and underburden can vary from material to material. The size of decision-unit volumes will be based on factors such as throughput of retrieval process, cost effectiveness, amount of sampling required to demonstrate representativeness, radioassay capabilities, and material handling.

1.2 Design Assumptions

1.2.1 General

Applicability of Other TRU Pits and Trenches. The accelerated retrieval system (or system design) may be applied to the remediation of one or more whole or partial pits and trenches in the Subsurface Disposal Area. Though performed using the accelerated retrieval system (or design), such remediation efforts are outside the scope of the Accelerated Retrieval Project. However, the following are applicable to the design of the accelerated retrieval system:

- **Exclusion of Pad A Waste**: The accelerated retrieval system is not required to accommodate retrieval of waste from Pad A because of the aboveground burial configuration of the waste at Pad A rather than the below ground configuration of other TRU pits and trenches in the Subsurface Disposal Area.

- **Alternate Pit Boundaries:** The scope of buried waste that might be retrieved from alternative pits or trenches will be limited to established pit or trench boundaries. Waste outside these established boundaries may be retrieved (though not necessarily) if it is practical and safe to do so. This will prevent extensive studies to determine the boundaries of each TRU pit and trench that would require a large effort and would be further complicated by undocumented waste burials.

- **Alternate Hot-spot Retrievals:** Hot-spot-retrieval scenarios (i.e., partial pit or trench retrievals equaling 1/10 ha [1/4 acre] or more) will be the process considered for additional pits or trenches to

achieve TRU-removal goals (excluding excepted large objects and high radiation sources that may be encountered) provided the retrievals are cost effective. Applications of a small footprint retrieval design (e.g., smaller than the hot spot) must be performed iteratively to achieve complete remediation of the area within the selected pits and trenches.

Design Life and Throughput. The design shall, where practical, include structures, systems, and components that have a design life and throughput capacity consistent with the Waste Area Group 7 lifecycle baseline assumption for retrieval of 50% of the buried TRU waste. This assumption has design implications for the accelerated retrieval system, but performance of other remedial actions is outside the scope of this project. Because 50% of the surface area of the TRU pits and trenches (including OU 7-10) equates to approximately 3 ha (8 acres), it is almost certain that multiple retrieval locations must be accommodated (e.g. through relocation or replication of the retrieval system.)

Applicable Codes and Standards. The design will be performed in accordance with applicable codes and standards. Equivalency requests and waivers will be required to implement accelerated retrieval concepts.

Safety Analysis. A *Preliminary Documented Safety Analysis* will be approved by NE-ID to support the design concepts for equipment, operations, and the proposed controls and will demonstrate worker compliance with DOE-ID O 420.D, "Requirements and Guidance for Safety Analysis," evaluation guidelines. The final *Criticality Safety Evaluation* and final F*ire Hazards Analysis* are completed to support the *Final Documented Safety Analysis* (FDSA) and *Technical Safety Requirements* (TSRs). The FDSA and TSRs are written, reviewed, and approved to support the development of procedures and training of personnel.

Criticality Control. The OU 7-10 Glovebox Excavator Method Project retrieval operations, the acceptable knowledge documents for pre-1970 TRU, and the *Criticality Safety Study of the Subsurface Disposal Area for Operable Unit 7-13/14* (INEEL 2003) demonstrates that criticality concerns with the retrieval process can be managed.

Hazard Category. This project will be performed as part of the RWMC, with the safety analysis report prepared as an addendum to the RWMC Safety Analysis Report (SAR-6). The technical safety requirements identified in the SAR addendum will be added to the RWMC TSRs (TSR-6). The retrieval enclosure will be a Hazard Category 2 facility.

Structures. The retrieval enclosure will serve as a combination weather enclosure as well as a large area contamination barrier. It will be capable of connecting to a HEPA filtered exhaust ventilation unit that is skid-mounted. The retrieval enclosure will not be specifically designed, tested, or instrumented to ensure negative pressure in all areas of the enclosure. Two airlocks will be provided to allow personnel, equipment, and other materials to be brought in and out of the retrieval enclosure while maintaining the contamination barrier provided by the structure. Dust suppression and airflow will assist in contamination control.

Confinement and Remote Operations. The level of confinement and degree of remote operations used in the accelerated retrieval system design is based on the assessed inventory risks.

Radiological Monitoring. National Emission Standards for Hazardous Air Pollutants (NESHAPs) monitoring for radionuclides released to the environment will be required. Monitoring can be achieved

through use of a continuous monitoring system equivalent to that used by the Glovebox Excavator Method Project.

VOC Monitoring. Facility exhaust will not be monitored for VOCs.

GAC Treatment System. Per the shipping records, a limited amount of 743/744 sludge is located in the west end of Area G. Consequently, a GAC system is not required for the first retrieval campaign. The need for a VOC off-gas treatment system will be further evaluated based on VOC samples obtained from the Glovebox Excavator Method Project and measurements taken during the first retrieval campaign.

Fire Suppression. Diesel equipment used inside the enclosure will have onboard fire suppression systems installed. All fire suppression functions, other than the onboard fire suppression systems installed in the diesel powered equipment and immediate response actions by the excavator operator (i.e., for digface fires), will be provided by the CFA fire department.

1.2.2 Waste Volume And Condition

Waste Inventory. The waste inventory contained within the retrieval area is known based on acceptable knowledge (AK) gathered from past generator records and disposal records.

Waste Condition. The drums containing wastes are significantly deteriorated and not conducive to retrieval as intact drums. Glovebox Excavator Method Project information on the condition of waste containers may impact the Final Design.

Waste Depth. The waste materials are approximately 5 ft from the surface (initial overburden of 3 ft and 2 ft of potentially contaminated soil) and the waste layer is approximately 11 ft thick.

Absence of Classified Waste. Assume no classified waste is found during the excavation and retrieval of buried waste. Security reviews will occur at the time of real-time radiography by Centralized Characterization Project personnel.

Absence of ^{235}U. Assume no ^{235}U in the waste zone material.

1.2.3 Waste Sampling

Sampling Standard Waste Boxes. All standard waste boxes (SWBs) containing waste zone material and soil will be sampled and analyzed to support either characterization for acceptance at WIPP or return to pit. A process will be developed to take representative samples before packaging occurs.

Laboratory Usage. Samples will be transported to the CFA or INTEC for analysis. Laboratory resources are available to support the project needs.

Sample Turnaround. To support operations, analysis of samples can be performed on an expedited basis.

Pre-retrieval Overburden Core Sample. A three ft deep core sample will be taken for every 100 ft^2 (i.e., 10 x 10 ft). Area G is approximately 110 by 202 ft yielding approximately 242 samples. The samples

would be screened by direct scanning with an alpha probe coupled to a survey instrument (i.e., as in Glovebox Excavator Method) or sample assay via gamma spectroscopy.

Layer of Potentially Contaminated Soil. The layer of potentially contaminated soil, just below the overburden, is sufficiently characterized by sampling and analysis, and excavation will proceed carefully to exclude waste forms from this material.

Sampling Methods. The sampling methods will be the same for the TRU and non-TRU containers. The samples can be used to meet WIPP sampling and analysis requirements, however, the level of analysis required may be different for TRU and non-TRU containers as determined after using nondestructive assay methods.

Underburden Sampling and Analysis. After waste zone material removal (i.e., when visual evidence suggests that the waste in that area has been removed and the excavation has penetrated into the underburden soil), the excavator bucket will be used to scrape up a 6 in. layer of the underburden soil and place it in an SWB. The SWB will be representatively sampled for a quick turnaround analysis for radionuclide contamination levels (TRU). If contamination is less than 100 nCi/g TRU then no more underburden will be removed. If greater than 100 nCi/g TRU, then additional underburden will be removed in a 6 in. cut and the process of sampling and cutting deeper is repeated until thresholds are met, basalt is encountered, or the reach of the excavator is exceeded. The depth of significant contamination in the underburden is assumed to be limited to two ft.

1.2.4 Waste Treatment

Treatment. Treatment will only involve treatment of retrieved TRU for VOCs to meet WIPP WAC gas-generation testing needs. A low-temperature thermal desorption process will be developed to meet transportation requirements and the technical positions developed to allow the treated organic sludge to be placed in the analytical category for shipment to WIPP.

In-Situ Treatment. No in-situ treatment techniques are considered part of the project scope.

Volume Reduction Goals. No volume reduction goals apply to material returned to the pit or for TRU waste disposed at WIPP.

1.2.5 Waste Storage

Quantity of Waste Storage. One-half of the retrieved waste zone material will be TRU waste and require disposal at WIPP. The other half will either be placed in CERCLA storage pending return-to-pit or pending the identification of an appropriate disposal facility.

CERCLA Waste Storage. Packaged waste requiring storage will be characterized for safe and compliant storage and be stored in a CERCLA-governed storage area. The planned CERCLA storage facility will require a risk-based storage approval to support storage of Toxic Substance Control Act (TSCA) regulated waste.

Storage Structures. Containers of retrieved waste will be stored out of the weather in new or existing tension or air supported structures. Single or multiple enclosures may be used.

Storage Location. An area north of the SDA, but within 500 ft of the SDA boundary, will be available to erecting the CERCLA storage enclosures.

TSCA Waste Storage. TSCA waste (15 USC 2601 et seq., 1976) storage will be required for retrieved waste if waste exhibits PCB concentration greater than or equal to 50 ppm.

Fissile Material Assay. An initial fissile material assay of the retrieved material will be performed to assure the material is stored in a critically safe manner.

Triggering LDRs. Land Disposal Restrictions (LDRs) are not triggered through storage. Waste is only staged as part of a larger process that includes return-to-pit. This assumption may not be valid if staging exceeds one year. If LDRs are triggered through storage, additional characterization will be required for full RCRA waste determination. Also, if LDRs are triggered, treatment for hazardous characteristics and delisting will be required prior to return-to-pit.

1.2.6 Waste Returned To The Pit

Low-level Waste. Retrieval will involve returning SWBs that have TRU contamination levels of less than or equal to 100 nCi/g to the pit.

TRU Waste. The EPA and IDEQ concur that returning up to 100nCi/g TRU to excavated portions of the TRU pits and trenches is acceptable.

Overburden Backfill. Layer of potentially contaminated soil will be sampled and analyzed for radioactive contamination, staged within the retrieval area, and returned to the pit.

Exception for Large Objects. Large objects encountered during excavation or items that cannot be size-reduced (i.e., broken up or sheared) or lifted safely using end-effectors deployable by the selected excavation equipment will be excepted from retrieval. Large objects will be identified by name based on acceptable knowledge. Unanticipated large objects (i.e, outliers) will be evaluated for relocation or removal but may be left in place if the retrieval equipment cannot perform the handling activities in a safe manner. Acceptable knowledge or characterization (or both) will be used as a basis for verifying acceptable CERCLA waste.

Exclusion for Underburden and Waste Zone Material Beneath Excluded Large Object: Retrieval is not required for the inaccessible underburden soils and waste zone material located beneath excluded large objects. This soil may remain within the pit without implementation of applicable closure requirements (e.g., requirements for a clean soil layer with a linear sorption coefficient of at least 500 mL/g and a depth of at least 2 ft).

Documentation of Objects. Large objects and remote-handled objects that are not retrieved will be documented. Documentation will include a description and their location within the pit and these documents will become quality records and treated as such.

Highly Radioactive Waste: High radiation sources (e.g., waste masses or items) encountered during excavation and retrieval will not be stabilized in situ. High radiation sources are defined as sources of

beta/gamma radiation measuring greater than the threshold established for contact-handled waste. Determination of acceptable CERCLA residual risk for this waste will rely on acceptable knowledge.

Exclusion for Underburden and Waste Zone Material Beneath High Radiation Sources. Retrieval is not required for the inaccessible underburden soils and waste zone material located beneath high radiation sources. This soil may remain within the pit without implementation of applicable closure requirements.

Underburden. Underburden soils that contain less than or equal to 100 nCi/g can remain in the pit. Further, the amount of contaminated underburden soil that will require removal is assumed to limited to a depth of 2 ft. Glovebox Excavator Method Project information on the migration of contaminates into the underburden will not impact or change the concept as identified in the conceptual design but may impact the Final Design. Under no circumstances is retrieval into the basalt bedrock required.

Subsidence Prevention. Soils returned to the pit shall be compacted and waste containers returned to the pit shall have void spaces filled to prevent future subsidence and prevent the compromise of the engineered surface barrier that is anticipated as a minimum closure element of the OU 7-13/14 selected remedy. SWBs may be grouted prior to placement in the pit to minimize subsidence within the pit.

Future Treatment or Remediation. SWBs returned to the pit will not preclude future treatment or remediation.

1.2.7 TRU Waste Characterization, Certification, And Disposal

Approach to Waste Disposition. Acceptable waste stream assignment, sampling of homogeneous and soil/gravel wastes, and certification approaches can be developed and negotiated with WIPP regulators.

Utilization of the Centralized Characterization Project. Personnel and equipment of the Centralized Characterization Project (CCP) from the National TRU Program will be employed to support the characterization, certification, and transportation of TRU waste to WIPP under an existing program, adapted to the INEEL. WIPP CCP will be available in FY 2004 to support project planning and deployed to INEEL in FY 2005. CCP operations will not be part of retrieval start-up operational readiness for October 1, 2004. FY 2005 project planning will provide funding for subcontracting CCP services, a setup area, and utilities.

Space Availability at WIPP. Adequate space is available and can be reserved at WIPP for retrieved TRU waste.

Waste Stream Assignment. The approach for assigning generated waste streams requires Carlsbad Field Office review and approval. It is assumed that Carlsbad Field Office approval will be granted for the following waste stream approaches. Material is segregated into two forms (interstitial soil and waste and interstitial soil). Based on the disposed waste acceptable knowledge record, "as disposed" waste streams will be delineated and documented using the physical form, waste generating processes, and hazardous waste number assigned. These as disposed waste streams will be correlated to a retrieval area. The as disposed waste streams will be consolidated to reflect co-mingling and retrieval limitations. Confirmation of the waste stream assignment will be accomplished by either visual examination or real-time radiography.

To augment waste stream assignment, the expected waste streams within the retrieval area will be evaluated and the need/strategy for segregation evaluated. This will be done to reduce the opening of packaged waste and repackaging to yield a WIPP Waste Acceptance Criteria compliant waste form. For instance, if filters are being retrieved, a retrieval strategy will be presented to ensure radiological limits are not exceeded. Segregation of test category waste will also be evaluated. The presence of prohibited items, identified by acceptable knowledge, will be addressed in the retrieval strategy. The proposed strategy will be reviewed with retrieval operations, comments incorporated, and the proposed strategy documented in an engineering design file report.

Solids and Soils Sampling. The RCRA sampling plan/approach requires Carlsbad Field Office review and approval. It is assumed that the Carlsbad Field Office approval will be granted for the following logic. Sampling of TRU homogeneous waste and soil will occur prior to waste packaging using grab samples. Sufficient sampling will occur to ensure that no chemical characterization (i.e., coring) is required after the waste is packaged. To potentially reduce the number of samples needed, a statistical evaluation of the Glovebox Excavator Method Project and 3100m^3 Project data sets for possible use as WIPP Waste Analysis Plan preliminary data will be assessed. The sampling analysis results will be used to confirm acceptable knowledge.

Gas Generation Testing. A gas generation testing system capable of processing SWBs can be developed, demonstrated, and acquired for WIPP certification and approved by the Nuclear Regulatory Commission.

Availability of Nondestructive Examination and Nondestructive Assay Technology. Commercially available Nondestructive Examination and Nondestructive Assay technology is capable of inspecting retrieved waste streams (e.g., mixtures of soil, debris, and sludge) packaged in SWBs for WIPP certification including waste designation assignments, prohibited item identification, material parameter weight estimation, and nuclear properties determination.

Certification by WIPP for Waste Disposal. A strategy will be developed for the necessary generator certifications for sending TRU waste to WIPP. The Advanced Mixed Waste Treatment Project will not be considered for performing some of this work scope; the Centralized Characterization Project will provide the certification plan.

Data Capture. Information management needs will address data collection, review, validation, and reporting functions necessary to qualify waste for shipment to WIPP and will integrate with planned or existing Centralized Characterization Program capabilities.

Quality Programs. The Centralized Characterization Project Quality Assurance Program and the Idaho Completion Project Quality Assurance Program for TRU waste will interface with minimum difficulties.

1.2.8 Other Waste Disposal

Potential for Waste With No Disposal Path: To address the potential for accelerated retrieval generating waste with no identified path to disposal (i.e., newly generated through excavation and retrieval of pre-1970 buried TRU waste), it is assumed that, at a minimum, the four conditions identified in DOE M 435.1-1, Sections III.H. (2) and IV.H. (2) for TRU and LLW, respectively, are satisfied and documented. Further, it is assumed that generation of such wastes in accordance with the documented conditions is approved by NE-ID.

Disposition of Secondary Waste. Generated secondary waste, which meets the INEEL CERCLA Disposal Facility (ICDF) waste acceptance criteria (WAC), will be disposed of in ICDF. Secondary waste that does not meet the ICDF or WIPP WAC for TRU contaminant concentration (i.e., containing greater than 10 nCi/g but less than 100 nCi/g average TRU contaminant concentration) either (a) will be blended into or matched with retrieved waste zone material containing greater than 100 nCi/g average TRU contaminant concentration and disposed of at WIPP, or (b) will be treated and disposed of at the Nevada Test Site or Hanford, provided the waste meets the respective WAC. This disposition path assumes that the permit for one or both of these facilities has been modified to accept CERCLA waste, one or both of the facilities has been granted approval by EPA to receive CERCLA waste under 40 CFR 300.440, "Procedures for Planning and Implementing Off-Site Response Action," and the necessary certifications and approvals to ship waste to these facilities are received.

1.3 Procurement Assumptions

Procurement. Commercial grade materials will be used, where practical. Procured items will be received in a timely manner and as planned (e.g., meeting specified quality requirements). Safety significant components will be limited to waste packaging components. The retrieval enclosure will be procured as a procurement-quality-level 3.

1.4 Construction Assumptions

Utilities. Utilities will have the required capabilities and can be secured at the locations indicated on the conceptual drawings. Utilities, including utilities for the WIPP Centralized Characterization Program, can only be placed under the first 2 to 3 ft of overburden.

Construction Access. The restriction to access the Subsurface Disposal Area is lifted allowing construction activities to begin as early as weather and field conditions safely allow.

Removal of Initial Overburden Layer. Approximately 3 ft of overburden will be removed as part of the construction phase. The overburden will be sampled prior to removal to verify absence of radiological contaminates above established background levels. A separate Management Self-Assessment is not needed for overburden removal. If this 3 ft layer of overburden soil (or as alternately defined by the presence of an underlying layer of "hardpan") is determined to contain no detectable or adequately low contamination, it will be excavated and stored, in bulk, outside for the duration of the project. The exposed surfaces of the overburden will be protected to minimize wind erosion until it is ultimately returned to the pit. If contaminated above acceptable levels, the remaining potentially contaminated soil will be left for operations to retrieve in a manner similar to the waste zone material.

1.5 Operations And Maintenance Assumptions

Retrieval Area. The retrieval will occur in Pit 4 Area G. The coordinates of Area G are assumed to be (NW corner: E266742, N669378; NE corner: E266944, N669366; SE corner: E266939, N669259; SW corner: E266742, N669269. Area G is approximately 110 ft by 202 ft.

Excavation. The retrieval area will be excavated using equipment that is capable of digging down to basalt (28-ft) working from a position on top of the remaining potentially contaminated soil. Waste retrieval will start at the west end of Area G and work toward the east.

Worker Location. DAC levels within the retrieval structure are assumed to stay low enough to allow occupancy by operations personnel wearing PPE during the excavation, sampling, and packaging processes. If elevated DAC levels are encountered, actions will be taken to reduce the DAC levels.

Worker Protection. PPE and administrative controls, in addition to engineering controls, will be used as the primary boundary for personnel safety.

Limited Personnel. A limited number of personnel (approximately 10) will be working in the retrieval enclosure at any time.

Worker Stay Times. Worker stay time, based on heat stress limits, will be a minimum of 3 hours when working in PPE within the retrieval enclosure.

Operational Readiness. Retrieval operations are a continuation of the OU 7-10 Glovebox Excavator Method Project retrieval activities. Consequently, an operations readiness review will not be required. A Management Self-Assessment and Readiness Assessment will be performed with the operating contractor having start-up authority. A NE-ID Line Management Assessment will not be required.

Size Reduction. Size reduction will be limited to breaking up items using excavator buckets, hydraulic hammer attachments, or shear attachments.

Fissile Monitoring. No monitoring for fissile material content of waste at the digface or as retrieved material is packaged will be required. There is no criticality alarm system installed.

Waste Segregation. Waste segregation will occur at the point of excavation. Waste segregation is limited to two waste forms: 1) soil with no visible waste materials present, and 2) soil with visibly identifiable waste (e.g., sludges or debris). Acceptable knowledge will be used for a defined retrieval area to apply RCRA waste codes. No segregation of test category waste/sludge mixed with soil will be performed at the digface.

Packaging. Packaging does not preclude radioassay and real-time radiography to meet criticality control, safe storage, and WIPP certification requirements. Retrieved soil and waste will be packaged as follows:

- Retrieved soil from the waste zone and underburden will be packaged in containers that will allow either disposal as TRU waste or for return to pit. Soil will be placed in reusable containers and temporarily staged within the confines of the retrieval enclosure. NDA will be performed to determine the level of TRU contamination. Containers of soil containing above 100 nCi/g TRU will be repackaged in SWBs and removed from the retrieval enclosure. Containers of soil meeting return-to-pit (less than or equal to 100 nCi/g TRU) will be dumped back into the excavated portion of the pit for reuse as new underburden or as interstitial soil between containers of redisposed waste.

- Retrieved remote-handled waste may be packaged in externally shielded 55-gal drums.

- Special case materials will be packaged on a case-by-case basis.

- Samples will be taken at the time of packaging.

Estimated DAC Levels. During excavation, DAC values are estimated to range from 1200 to 20 million. DAC levels experienced in the OU 7-10 Glovebox Excavator Method Project with retrieval of graphite material will be similar to DAC levels obtained in Area G with retrieval of filters.

Control DAC Levels. Derived air concentration levels are manageable through misting, sealing, and foaming. All waste surface areas that are not actively undergoing excavation will be sealed with surfactants. Waste surfaces being actively excavated will be continuously misted with a dilute surfactant solution. The excavator boom will also be equipped with a misting device. The loading of waste materials into boxes will utilize a foaming agent to significantly reduce airborne generation. Mitigated DAC levels are calculated at 12 to 200,000. It is assumed the foaming and misting materials will not affect the WIPP waste streams.

Operation Shifts. Operating crews will conduct retrieval activities on a one 12-hour shift per day, 7 days per week. Waste retrieval activities will be conducted year around except when environmental conditions preclude safe operations.

Cold Test Activities. A cold test takes place in the Cold Test Pit North or South using simulated waste in a mocked-up environment to dig the depth of the pit and test dust suppression systems and the major equipment used during actual retrieval operations. Operating personnel will have sufficient time to properly train on the equipment.

Personnel Training. Personnel will have time to adequately train on installed equipment.

1.6 Final Disposition And Closure Assumptions

Minimum Closure Elements of the Pending OU 7-13/14 Remedy. The selected remedy to be implemented by the OU 7-13/14 Comprehensive ROD will include, at a minimum, an engineered surface barrier and institutional controls in perpetuity to manage risk from groundwater and surface exposure pathways (e.g., external exposure and intrusion by humans, plants, and animals). These remedial elements are common to the alternatives being evaluated in the OU 7-13/14 Comprehensive RI/FS. Further, for residual risk-estimation purposes, it is assumed that institutional controls will be in place, which limit the receptor location to the INEEL boundary for at least the initial 100-year period and to the SDA boundary thereafter.

Underburden Layer. A 2 ft layer of clean underburden will be added above the basalt bedrock before material is returned to the pit.

Overburden Layer. The pit will be covered with a clean layer of overburden material, compacted, and graded consistent with the overall Subsurface Disposal Area grading and drainage plan.

Structure and Equipment Removal. The structures and equipment are decontaminated and disassembled or moved to a different area for reuse.

2. COST ASSUMPTIONS

Cost Estimate. Contingency will be included in the estimated cost based on the maturity of the design.

Structures. New tension structures(s) sized to best achieve cost-effective acquisition, relocation and reuse, and retrieval operations costs will be used.

Resource Needs. Design work is performed in-house; minor subcontracting work to outside consultants may be necessary for specialty areas. Construction activities will be performed with force account personnel and construction management provided by the project construction manager and field engineers. All retrieval operations are performed in-house; no provisions are made to subcontract any portion of the operational retrieval work to outside subcontractors.

TRU Waste Management Work. The national WIPP Centralized Characterization Program mobile capability for performing waste characterization, certification, and transportation functions will be implemented as an alternative to establishing INEEL capability resulting in a faster, more cost-effective approach. Funding will be provided to establish the necessary infrastructure for the Centralized Characterization Program in the second quarter of FY 2005. The services of the Centralized Characterization Program will be provided through a subcontract to WIPP.

Office Space. Existing office space is available at RWMC. The project will not supply additional office space.

Meeting Schedules. Project activities are completed as identified on the project schedule. Failure to meet the schedule could result in costs not reflected in the estimates, and an evaluation of these estimates will be necessary to resolve any cost changes created by the use of an alternate schedule.

3. SCHEDULE ASSUMPTIONS

Procurement. The time allotted in the schedule for contract development, bid, and award will be sufficient to meet project requirements.

Major Procurements. Major procurements can be delivered in accordance with the current project schedule.

Documented Safety Analysis. Conceptual design information will be available and adequate to allow review and approval of the final documented safety analysis and will not affect the project schedule. The NE-ID approval process is modified to significantly shorten the review and approval cycle for the safety analysis documents.

Completion of Final Design. Final Retrieval Design will follow immediately after Conceptual Design and will be completed by March 31, 2004.

Construction Initiation. Construction activities will begin as early as spring seasonal conditions allow. The schedule assumes no delays for environmental conditions that may preclude initiation of construction or cause delays during construction activities.

Structure Availability. The retrieval enclosure/airlocks and interim storage enclosure will be available as required to start construction activities.

Equipment Availability. Equipment to be used for the excavation and retrieval will be available and updates and/or modifications will be completed as required to start operations training and testing.

Equipment Conditions. Equipment required for the project will be in good operating condition. No allowance has been made for operating beyond periodic maintenance services and repair.

Retrieval Campaigns. Four retrieval campaigns of 1/8-acre (25% of Area G) are planned. The initial retrieval campaign is scheduled to begin October 10, 2004. The final retrieval campaign will be completed within 24 months following start of waste retrieval operations.

Delays Due to Outliers. No material will be encountered outside the safety analysis bases (i.e., outliers) No delay to the project critical path schedule will occur as a result of finding material outside the inventory (e.g. radon gas masking radiological monitoring). Special case scenarios are excluded from project estimates.

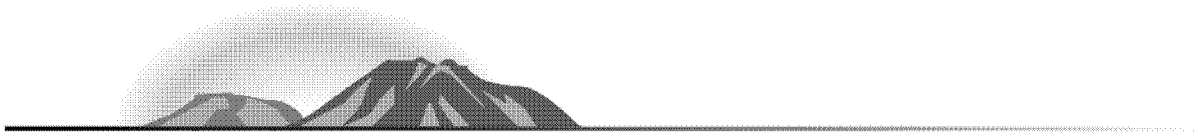
Sample Analysis Delays. Assume no delays from sample analysis activities.

Classified Objects. Assume no work stoppages for identification of classified objects.

Approval of Equivalency Requests or Waivers. The schedule will not be impacted by NE-ID approvals of code equivalency or waiver requests.

4. REFERENCES

INEEL, 2003, "Criticality Safety Study of the Subsurface Disposal Area for OU 7-13/14," Rev. 1, INEEL/EXT-01-01294, February 2003.



Appendix B

Alternatives/Tradeoffs

Appendix B

Alternatives/Tradeoffs

INTRODUCTION AND SUMMARY

This study evaluated excavation options for the Accelerated Retrieval Project. Basic assumptions used in the initial phases of the study where:

- The enclosure for the retrieval area is a 90 × 110 ft fabric structure obtained from the Rocky Flats site.
- The area to be retrieved contains approximately 5 to 7 ft of clayey silt overburden soil, 6 to 10 ft of waste zone material consisting of waste materials and interstitial soil and approximately 2 ft of possibly contaminated soil beneath the waste zone.

The following is a list of the initial seven options with a brief description.

Option #1 – Use perimeter sheet piling and stage overburden outside the enclosure.

Option #2 – Use sheet piling around the perimeter and in 2 lines the length of the enclosure with overburden staged inside.

Option #3 – Excavate using the material angle of repose and overburden staged inside the enclosure.

Option #4 – Excavate using the material angle of repose and overburden staged outside the enclosure.

Option #5 – Excavate using a shoring grid system such as a shoring box and stage the overburden inside the enclosure.

Option #6 – Use a perimeter grade beam or retaining wall to allow a vertical excavation wall through the overburden, excavate the waste seam using the material angle of repose and stage the overburden outside the enclosure.

Option #7 – Use perimeter sheet piling and stage overburden inside the enclosure.

The advantages, disadvantages, risks, and uncertainties for each option studied were noted; however, cost was the major factor in deciding which of the feasible options was the best. Rough order of magnitude cost estimates were made for the initial options. Only items that had significant cost differences were included in these estimates.

Options 2 and 7 were estimated to be the least costly with the assumptions and limitations that were first used. Table B-1 summarizes the cost estimates by option. No cost estimate was produced for Option 3, as the Rocky Flats enclosure is too small to allow use of this option. The needed angle of repose for Option 3 was only feasible if a different, larger enclosure was used.

Table B-1. Excavation options for AR Project.

Item	Costs by Option ($K)					
	1	2	4	5	6	7
Buildings	756	446	722	446	722	446
Sheet Piles/Shoring	571	489	0	1,568	26	571
Equipment	525	431	525	431	525	431
Building Moves	0	0	381	0	381	0
Operations	0	17	840	0	840	0
Procurement	28	21	17	42	18	22
BBWI Handling Fee	132	64	104	64	104	93
ICP Allocation	644	469	809	813	817	500
Total	2,656	1,937	3,335	3,364	3,379	2,063

Two other limited scope options were in the next study phase. These two options were to excavate approximately 750 yd^3 of waste zone material either by using the angle of repose or using a minimum amount of sheet piling. The two limited scope options cost estimates also included only items with significant cost differences. The estimates were nearly identical. The angle of repose option was only feasible if some overburden was staged outside the enclosure.

In the final phase of the trade-off studies, the use of the Rocky Flats fabric enclosure was eliminated due to the cost of obtaining it and associated schedule risks.

Two of the later concepts considered for the retrieval process are shown in Figures B-1 and B-2. Both concepts employ fabric enclosures and, to one extent or another, use sheet pile to minimize the amount of excavation (as compared to a 1:1 slope). Both concepts use similar equipment (Gradall excavator) and package and manage the retrieved material similarly. They differ in size of the enclosure and the amount of sheet pile used.

Other assumptions, action items, risks, and supporting information are included at the end of this appendix.

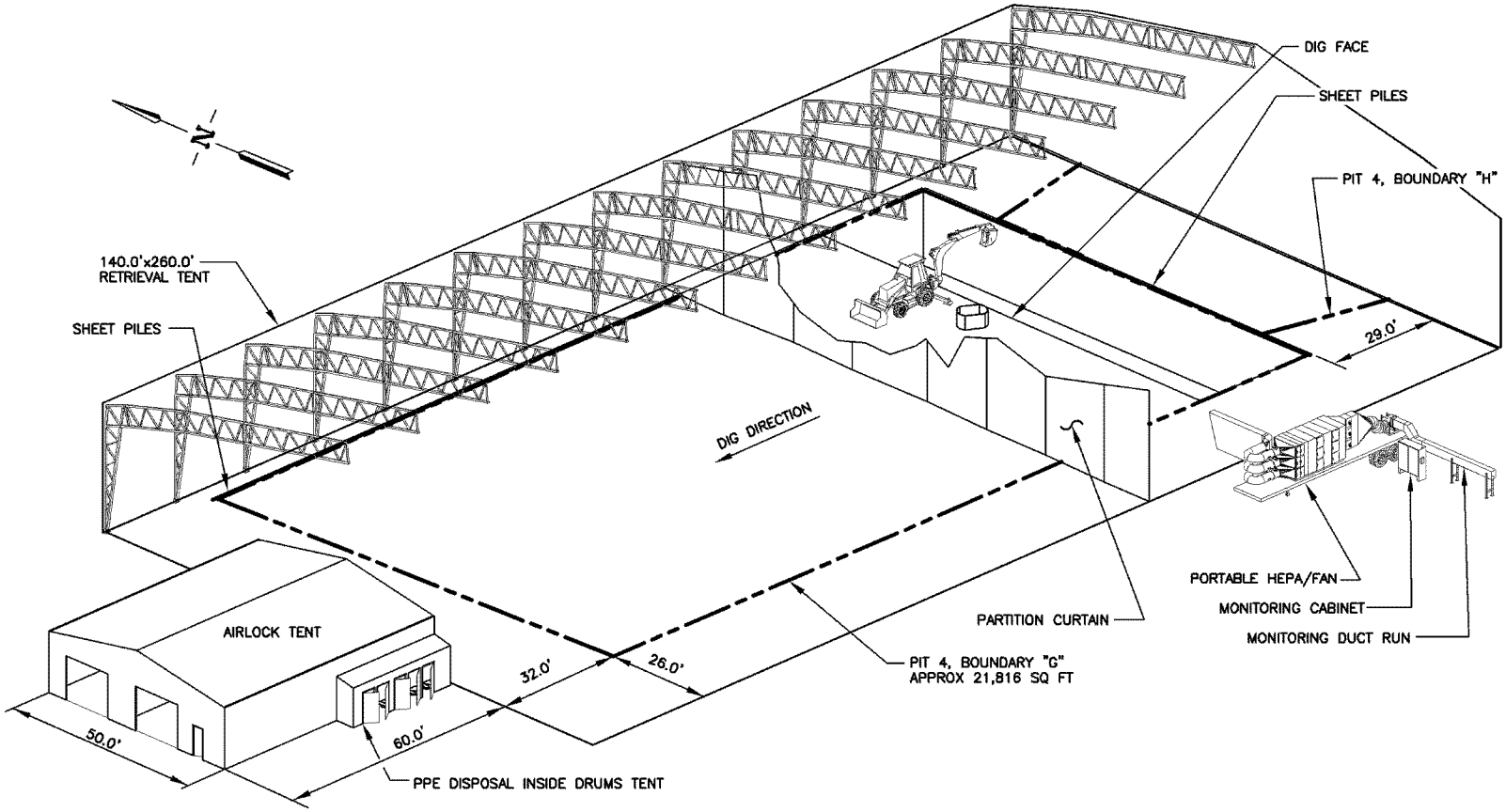

N
DIG FACE
SHEET PILES
PIT 4, BOUNDARY "H"
140.0'x260.0'
RETRIEVAL TENT
SHEET PILES
29.0'
DIG DIRECTION
PORTABLE HEPA/FAN
MONITORING CABINET
MONITORING DUCT RUN
PARTITION CURTAIN
AIRLOCK TENT
32.0'
26.0'
PIT 4, BOUNDARY "G"
APPROX 21,816 SQ FT
50.0'
60.0'
PPE DISPOSAL INSIDE DRUMS TENT

Figure B-1.

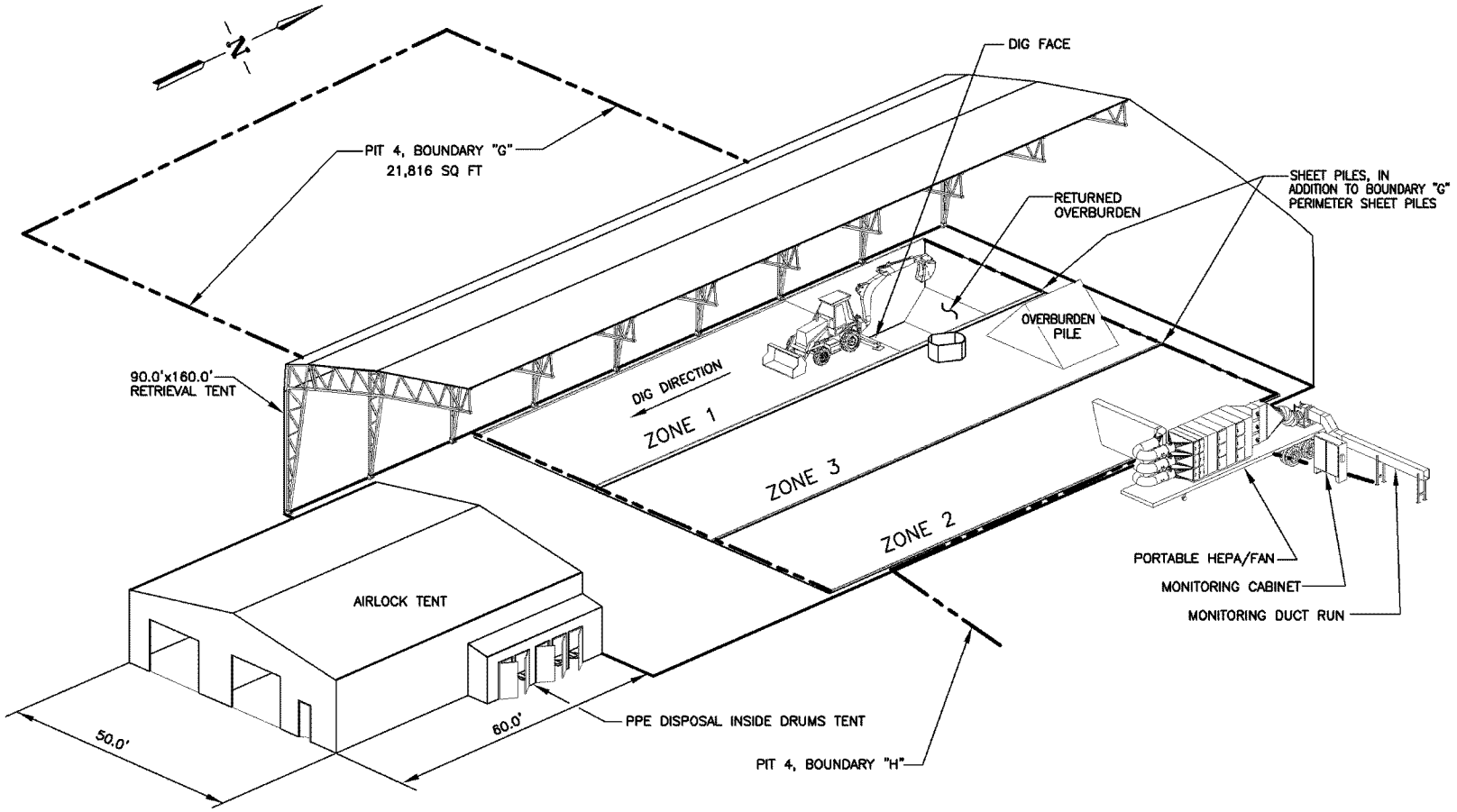

N
PIT 4, BOUNDARY "G"
21,816 SQ FT
DIG FACE
RETURNED
OVERBURDEN
SHEET PILES, IN
ADDITION TO BOUNDARY "G"
PERIMETER SHEET PILES
OVERBURDEN
PILE
90.0'x160.0'
RETRIEVAL TENT
DIG DIRECTION
ZONE 1
ZONE 3
ZONE 2
AIRLOCK TENT
PORTABLE HEPA/FAN
MONITORING CABINET
MONITORING DUCT RUN
50.0'
60.0'
PPE DISPOSAL INSIDE DRUMS TENT
PIT 4, BOUNDARY "H"

Figure B-2.

DESCRIPTION OF INITIAL OPTIONS

The following pages describe the initial options evaluated for this study. The options generally looked at the advantages and disadvantages of excavating using the angle of the repose of the materials versus shoring such as sheet piling. The other feature was the temporary staging of the overburden soils. If the overburden soils are removed from the enclosure, then more room is available for operations.

Option 1 – Sheet Pile (perimeter of enclosure/excavation)/ Overburden Outside

Description

This option includes installation of sheet piling around the perimeter of the excavation area. All overburden is removed from the enclosure and returned later for this option. This option requires an enclosure, containers or improved area for temporary staging of the removed overburden.

- Requires approximately 400 lineal ft of sheet piling.
- The removed overburden does not come back until the end of excavation.
- An optional modification would be to excavate half of enclosure area and then move the enclosure.
- To reduce the number of enclosure moves, operations could move below grade, back fill the excavated area and then move operations to the clean side.

Advantages

- All of the waste can be excavated before moving the enclosure if operations move from location to the opposite side.
- Placing overburden outside provides additional operational space.
- Allows ramp down into pit for below grade or clean side operations.
- Sheet pile cap can be designed to provide anchorage, sliding surface, and sealing surface for enclosure.
- Sheet piling provides a clear definition of the perimeter of the area that has been retrieved.

Disadvantages

- Requires additional piece of equipment to support backfilling.
- Requires additional enclosure for staging overburden.
- Must build a ramp to clean side to transfer equipment.
- Requires tiebacks for the top of the perimeter sheet piles. It is likely that these will need to be movable precast concrete blocks of sufficient weight to supply the tieback force from friction.
- Requires anchorage of the sheet pile bottom, temporary bracing of the bottom or sufficient overburden depth at the bottom. Temporary bracing will interfere with excavation.

- Space away from the enclosure perimeter will be required for the tieback blocks.
- Sheet pile cap if provided will interfere with excavation.

Cost Comparison Total – $2.66 million

Option 2 – Sheet Pile (grid)/Overburden Inside

Description

This option includes installation of sheet piling around the perimeter of the excavation area and in at least two lines evenly spaced across the width. All overburden is assumed to stay within the enclosure for this option. Some method for anchoring, shoring, or bracing the sheet pile top and bottom is required.

- The approximate dimensions for the inside overburden pile are 25 ft (base) by 12-1/2 ft (triangle shaped height) by 30 ft (long).
- A tractor-mounted backhoe is not large enough to excavate for this option.
- It is assumed that new fill will be brought into enclosure until shoring is safe.
- Sheet pile lines are assumed to be approximately 30 ft apart.

Advantages

- All of the waste can be excavated before moving the enclosure.
- Minimizes exposed waste seam and radiation and VOC exposure.
- Reduces the excavator reach requirements for the same depth assuming the excavator is located above grade.
- Provides the most operational space within the enclosure while still holding overburden inside.
- Allows complete waste removal without moving operations to below grade or over to the clean side (ramping across waste zone) without moving building.
- No additional equipment required to backfill pit.
- Sheet piling provides a clear definition of the perimeter of the area that has been retrieved.

Disadvantages

- May not be able to excavate waste in locations where the sheet pilings (more than 1 or 2 sheets) are not driven to bedrock.
- This option will require sheet piling shoring or bracing to prevent shoring failure for areas where the bottom of the sheet piling has insufficient under burden soil to ensure safe anchoring.

Cost Comparison Total – $1.94 million

Option 3 – Angle of Repose/Overburden Inside

Description

This option uses an angle of repose approach for safe excavation of the soils and waste zone. All overburden is assumed to stay within the enclosure for this option. This option is not feasible due to the limited area available for operations and storage of the overburden. A 1:1 slope was assumed for the angle of repose in evaluating this option.

- Requires multiple moves of the enclosure in order to excavate the same the 110 × 90 ft surface area assumed for this study.
- This option is not feasible with the assumed enclosure size. It would be feasible with a large enclosure.

Advantages

- Minimizes up front costs.

Disadvantages

- Not sufficient room for sorting operations.
- Requires 39 ft of equipment reach to return/place overburden at the top of pit.
- Requires 24 ft of equipment reach to return/place overburden at bottom of pit.
- Requires larger overburden placement volume of 270 yd^3 (7,290 ft^3) inside of enclosure.
- Little or no operating space remaining once the excavation starts.
- The area of waste that is retrievable is less than the area of the enclosure.

Cost Comparison Total – No cost estimate made since it was not considered feasible.

Option 4 – Angle of Repose/Overburden Outside

Description

This option uses an angle of repose approach for safe excavation of the soils and waste zone. All overburden is removed from the enclosure and later returned for this option. This option requires an enclosure, containers, or improved area for temporary staging of the removed overburden.

- Similar to Option 3 except that overburden is removed from the enclosure.
- Moving overburden outside allows for sorting operations.

Advantages

- Allows ramp down into pit for below grade operations.

Disadvantages

- Overburden and waste boxes will be brought through the same airlock and overburden storage enclosure or area.
- Must move building or backfill and move operation to clean side to excavate additional waste but less than half of the waste.
- The area of waste that is retrievable is less than the area of the enclosure.

Cost Comparison Total – $3.34 million

Option 5 – Shoring Box/Overburden Inside

Description

This option uses a shoring box approach for safe excavation of the soils and waste zone. Overburden stays within the enclosure for this option. Due to difficulties in sinking the shoring boxes through the waste zone the feasibility of this option is questionable.

- Could use check board installation process to reduce number of shoring boxes.

Advantages

- All of the waste can be excavated before moving the enclosure.
- Small overburden staging area.
- Allows hot spot retrieval.
- Minimizes the area of the exposed dig face.
- May allow use of existing Glovebox Excavator Method backhoe.

Disadvantages

- Difficult, if not impossible, to sink shoring box through waste seam.
- Box size limits or prevents ability to remove large objects.
- May require entry inside of shoring box (at waste seam) if problems occur during excavation. (personnel safety, confined space, fall protection, additional support personnel, safety equipment).
- Assembly and staging of shoring boxes.

Cost Comparison Total – $3.36 million

Option 6 – Angle of Repose with Grade Beam/Overburden Outside

Description

This option uses an angle of repose approach for safe excavation of the soils and waste zone. However, in order to minimize the area required, a retaining wall type grade beam is installed around the perimeter of the enclosure. All overburden is removed from the enclosure and later returned for this option. This option requires an enclosure, containers, or improved area for temporary staging of the removed overburden.

- Similar to Option 4 except that a retaining wall is constructed around the enclosure perimeter.

Advantages

- Allows ramp down into pit for below grade operations.
- Grade beams allow for more waste retrieval before enclosure move than other angle of repose options (provides straight walls through overburden then angle of repose).
- Enclosure can be moved easier.

Disadvantages

- A subsidence that undermines the grade beam could release contamination outside the enclosure area.
- Requires an additional enclosure or containers for overburden staging.
- Increases the construction schedule.
- Installation of grade beams requires digging in overburden. Could result in a release.
- Potential for additional sampling of overburden to allow grade installation.
- Requires almost as many enclosure moves as Option 4 to retrieve an equivalent area as assumed for the other options.

Cost Comparison Total – $3.37 million

Option 7 – Sheet Pile (perimeter)/Overburden Inside

Description

This option includes installation of sheet piling around the perimeter of the excavation area. It is similar to Option 1 except that the overburden remains inside.

- The configuration of the enclosure and sheet piling is similar to Option 1.
- The maximum overburden pile size is 25 ft (base) by (12-1/2 ft (tall) by 65 ft (long).

Advantages

- All of the waste can be excavated before moving the enclosure.
- Does not require additional overburden staging outside of enclosure.
- Other advantages similar to Option 1.

Disadvantages

- Requires additional backfilling equipment.
- Requires longer reach excavator for overburden return.
- Limited sorting operational space before placement of overburden.
- Other disadvantages similar to Option 1.

Cost Comparison Total – $2.06 million

DESCRIPTION OF LIMITED RETRIEVAL SCOPE OPTIONS

After considering the initial seven options, the engineering team established that the Rock Flats fabric enclosure was not a viable structure for Area G retrieval activities. Thus two additional options were considered that required the use of a larger retrieval structure. The following describes these options and considers the retrieval of approximately 750 cubic yards of waste zone material. An additional consideration was included in the limited-scope, alternatives/trade-offs analysis — retrieving the required amount of waste zone material using the minimum amount of sheet piling or retrieving the same quantity but slope the excavation to the angle of repose of the materials. A 1 to 1 slope was assumed for the angle of repose.

The angle of repose option required that approximately 200 cubic yards of overburden be staged outside the enclosure. This was necessary to provide adequate room for operations within the enclosure.

The rough order of magnitude cost estimates for these two options, with only the major cost differences included, were both approximately $1.5 million.

Conclusions

1. Standard Backhoe - Does not provide sufficient reach (at 14 ft + depth), insufficient lifting capacity, insufficient swing angle to support filling boxes or sorting. Ground pressure is higher than with trackhoe.
2. Pit exclusion zone will be required during operations.
3. Option 3 is not feasible due to lack of operational sorting space within the enclosure.

Assumptions

1. Backfill sheet pile to at least 4 ft from top of grade (structural) before removal of tiebacks or other bracing sheet pile.
2. Move sheet pile tieback blocks as excavation enclosure moves.
3. 1 enclosure will support the excavation and sorting activities.
4. 1 enclosure will support the storage of excavated and sorted waste.
5. An enclosure or sacks or boxes will be used to house overburden if removed from excavation enclosure. (90 x 110 x 5 ft = 1,800 yd^3 up to 2,100 yd^3)
6. Dig face sorting costs are common to all options.
7. Airlocks will be required at both ends of excavation enclosure.
8. Airlocks will be required at both ends of the overburden storage enclosure (for some options only).
9. Last 3 ft of pit depth will be left open until after final decontamination of enclosure or fixing of contamination on enclosure.
10. Building will not be moved until installation of last 3 ft of overburden has occurred.
11. Last 3 ft of overburden will be clean (at background levels).
12. An excavator capable of 360° pedestal rotation will be required to support waste sorting and box filling, plus associated personnel.
13. **WANT:** Minimal equipment inside excavation enclosure.
14. Bell bucket (wide & shallow) will be used with excavator.
15. Excavation beyond approximately 14 ft below grade will require moving into pit to complete excavation for some options. Depth at which this occurs depends on the horizontal reach required for the option and the excavation equipment selected.
16. Sheet piling is driven to bedrock.
17. No excavation will occur at locations where more than one piece of the sheet piling is not driven to bedrock. (May be able to excavate at the very end of the process. Allows for wall cave in.). Materials in pit region would not be retrieved.
18. Minimum bucket elevation for characterization will be at 4 ft (box height, pallet would be extra).
19. Sorting for WIPP or other requirements will occur inside excavation enclosure.
20. Enclosure will be decontaminated or contamination will be fixed prior to moving.
21. Operations can occur within a 35 x 90 ft area.
22. Operations occur May through October (6 months).
23. Operations occur during daylight hours.
24. Included in 20.
25. Excavation and operations will be optimized to maximize pit retrieval before moving enclosure.

26. No manned below grade operations will be performed during excavation.
27. Waste boxes will not be retrieved intact.
28. Airlocks with decontamination capability will be required at each entrance.
29. Digface geometry is 14 ft (5 ft overburden + 9 ft waste seam) depth with a 45° angle of repose (1 to 1 slope) and a minimum 5 ft underburden gap between waste and any returned overburden.
30. Operations may occur on the clean side of the pit.
31. Fall protection devices or a personnel exclusion zone with movable barriers will be required next to excavation areas especially those with vertical or near vertical walls.
32. Sheet piling will be left in place rather than removed after it has been used.

Personnel Estimate

Equipment Operator	2
Forklift Operator and Spotter	2
Sort & Sample (3 boxes at 2 persons each)	6
Laborers	2
Supervisor (per craft + shift)	4
Radcon (2 inside + 1 decon + 2 outside)	5
Industrial Hygienist	1
Storage (Boxes) (Safety, Equipment Ops, Spotter)	3
Storage (Overburden)	0
Maintenance (Mechanic, Supervisor, Planner)	1
SSC (mechanical, electrical, facility, backup)	4
Records (to WIPP)	2
Sampling	2
Special Shapes	1
Total	34

Supporting Information

1. Standard waste box payload = 3,350 lbs.
2. Rocky Flats existing enclosures are 90 ft wide by 110 ft long.
3. The existing Glovebox Excavator Method excavator reach is approximately 14 ft deep at about 14 ft horizontal from the backhoe support pins.
4. The maximum reach for large track hoes is approximately 50 ft.

Risks

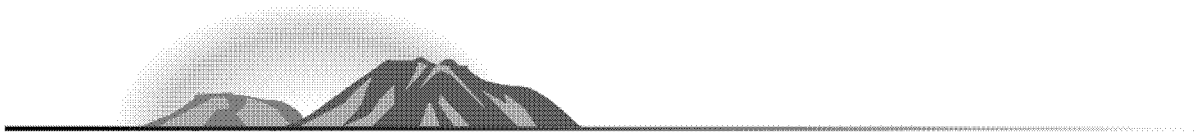
1. New skin may be required on Rocky Flats Enclosure.
2. Fall protection or exclusion zone impact on the required operations for elevated shoring box and open pits has not be evaluated.
3. Excavation beyond 14 ft extends beyond equipment reach and also impacts enclosure headroom required.
4. Sheet piling not installed to bedrock may prevent material removal in the region of concern.
5. Waste could be driven to bedrock during sheet pile installation.
6. Open pit excavation leaves a higher risk for radiation and VOC exposure to personnel and equipment. (Open dig face on all four sides of pit.)
7. Uncertainty regarding excavation depth and depth to bedrock requires conservatism in setting requirements of items such as sheet piling and excavation equipment or risk that those items will not function properly in some locations.

Action Items

1. Evaluate if a soil staging enclosure, soil sacks, boxes or cargo containers is the most cost effective to store the overburden removed from the excavated site.

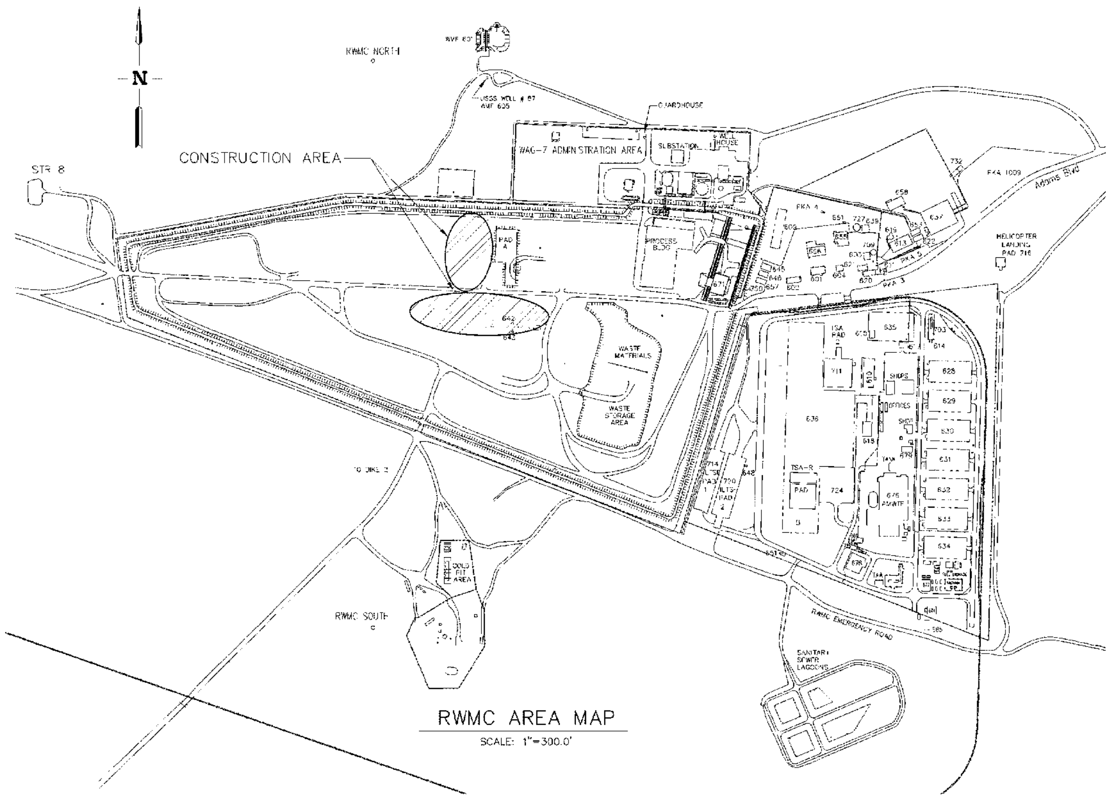
Questions

1. Do we retrieve intact drums?
2. Do we need continuous 360° pedestal rotation or is ± 180° sufficient?



Appendix C

Drawings



RWMC AREA MAP

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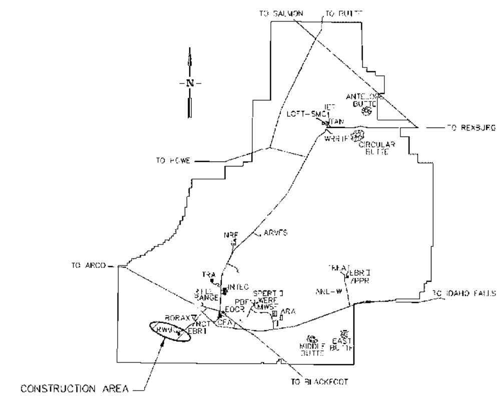

INEEL SITE MAP

SCALE: NONE

DRAWING INDEX

PAGE NO.	DWG NO.	A-E SH NO.	REV	DRAWING TITLE
1	625884	T-1	B	SITE MAP, AREA MAP AND DRAWING INDEX
2	625885	C-1	B	EXISTING SITE PLAN
3	625886	C-2	B	IMPROVED SITE PLAN
4	625887	C-3	B	EXCAVATION STEPS
5	625888	A-1	B	RETRIEVAL / AIRLOCK TENT FLOOR PLAN
6	625889	A-2	B	AIRLOCK TENT FLOOR PLAN
7	625890	A-3	B	ELEVATIONS
8	625891	A-4	B	STORAGE FLOOR PLAN
9	625892	HV-1	B	HVAC FLOW DIAGRAM
10	625893	BF-1	B	BLOCK FLOW DIAGRAM, RETRIEVAL OPERATIONS
11	625894	BF-2	B	BLOCK FLOW DIAGRAM, INTERIM STORAGE FLOWS
12	625895	BF-3	B	BLOCK FLOW DIAGRAM, CCP OPERATIONS
13	625896	BF-4	B	BLOCK FLOW DIAGRAM, LTTD FLOWS
14	625897	PF-1	B	THERMAL DESORPTION PROCESS FLOW DIAGRAM
15	625898	E-1	B	12.5 KV DISTRIBUTION SITE PLAN
16	625899	E-2	B	480 VAC POWER DISTRIBUTION AND GROUNDING PLAN

RELEASED FOR RECORD ONLY DO NOT FABRICATE

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SUBCONTRACT NO. N/A
REQUESTOR: SL AUSTAD
DESIGN: DN NISHIOKA
DRAWN: CA BEHM
PROJECT NO. 23927
SCALE: 1" = 300.0'
DESIGN PHASE CONCEPTUAL
SAFETY CATEGORY: CG

INEEL

OU7-10
ACCELERATED RETRIEVAL PROJECT

SITE MAP, AREA MAP AND DRAWING INDEX

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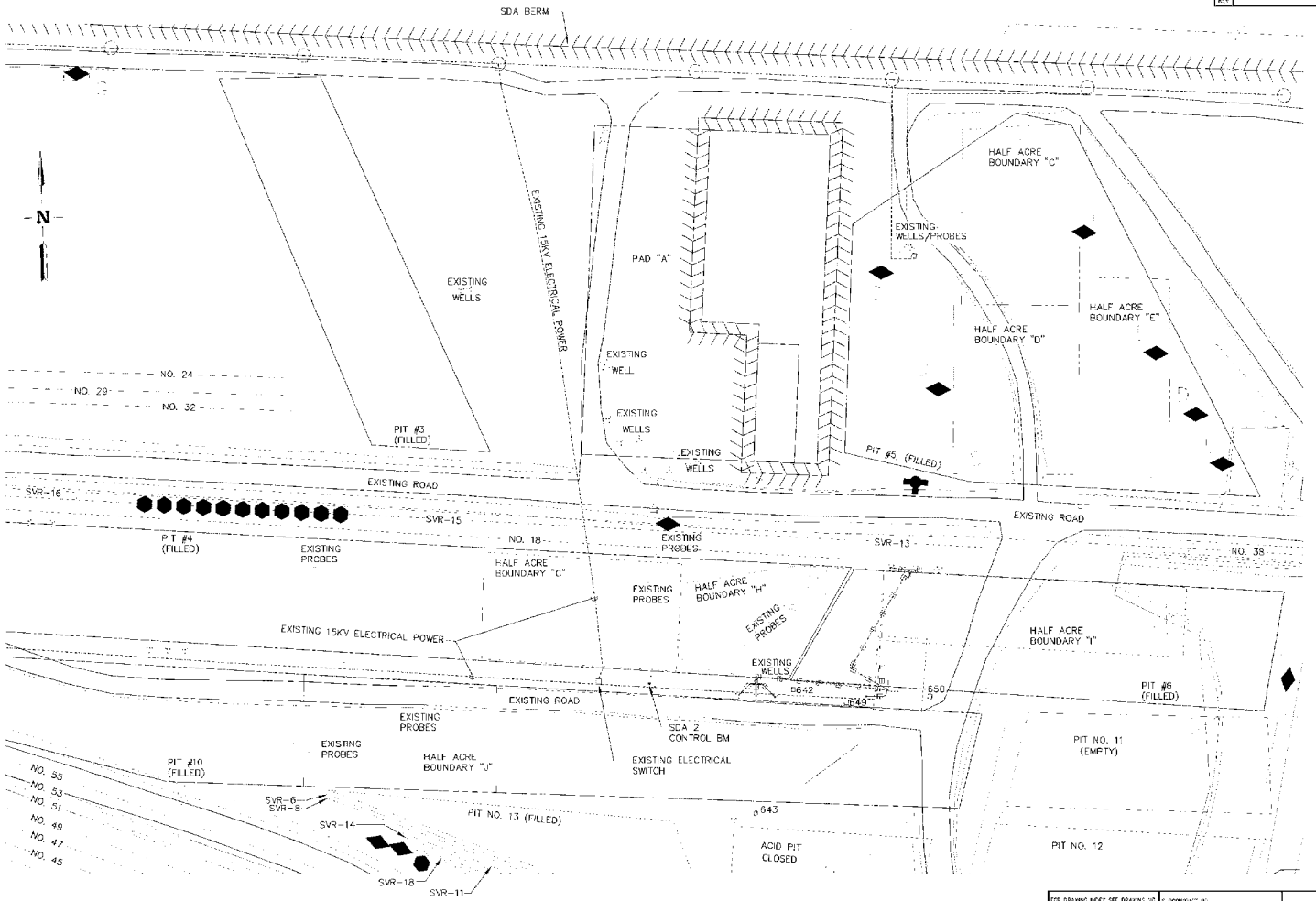

EXISTING SITE PLAN

SCALE: 1" = 50.0' INCLUDES PITS AND TRENCHES

RELEASED FOR RECORD ONLY

DO NOT FABRICATE

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SCALE: 1" = 50.0'	DESIGN: DN NISHIOKA
	DRAWN: CA BEHM
	PROJECT NO. 23927
	SPEC CODE
DESIGN PHASE: CONCEPTUAL	FOR REVIEW/APPROVAL SIGNATURES
SAFETY CATEGORY: CG	SEE CAF NO.
	EFFECTIVE DATE:

INEEL

OU7-10
ACCELERATED RETRIEVAL PROJECT

EXISTING SITE PLAN

DWG CHGT CODE	INDEX CODE NUMBER					REV
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SCALE: NOTED SHEET C-1

REVISIONS

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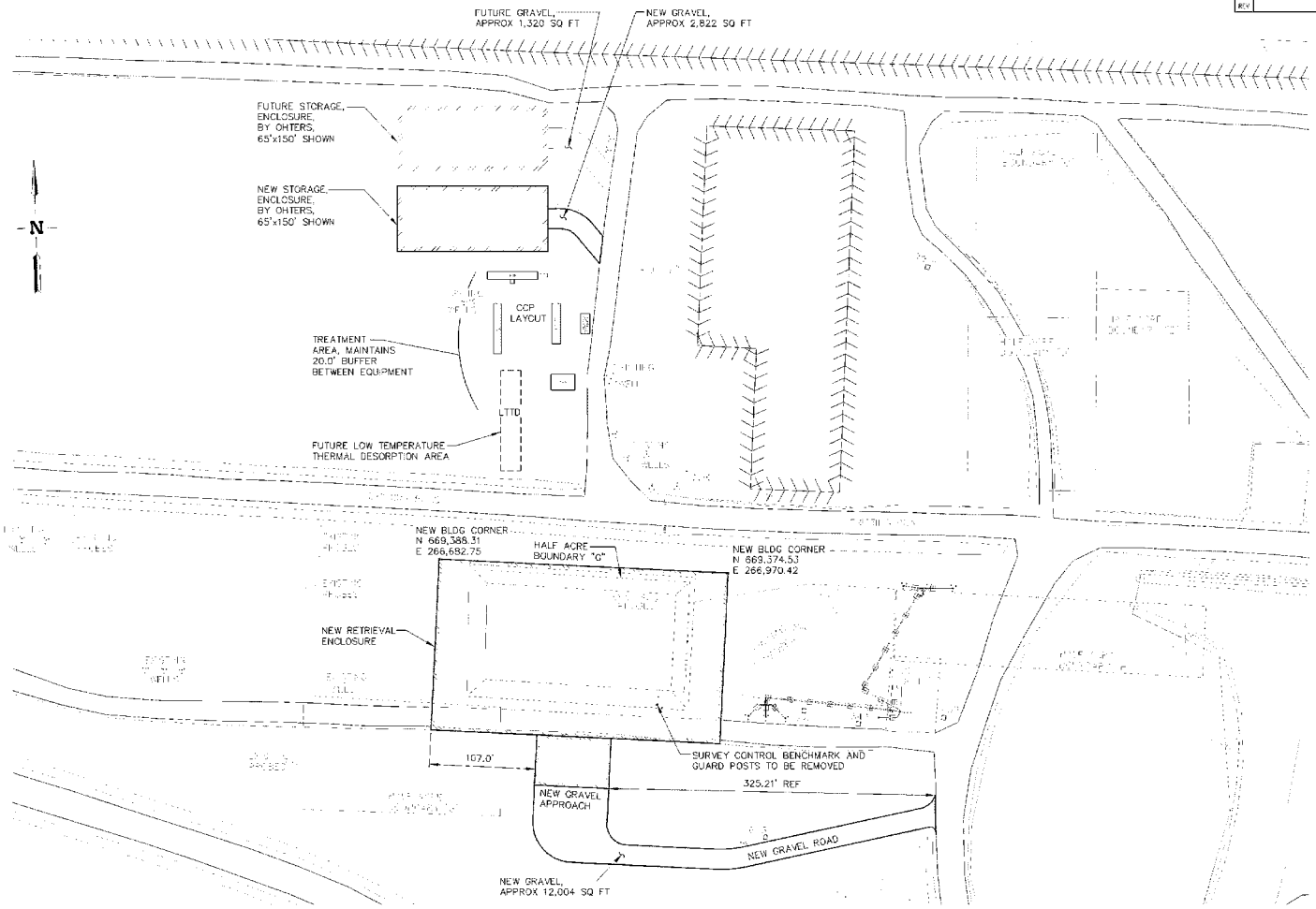

IMPROVED SITE PLAN
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COORDINATE DATUM: RWMC SITE SPECIFIC

RELEASED FOR RECORD ONLY

DO NOT FABRICATE

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DESIGN PHASE: CONCEPTUAL	DESIGN: DN NISHIOKA
SAFETY CATEGORY: CG	DRAWN: CA BEHM
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	SPEC CODE
	FOR REVIEW/APPROVAL SIGNATURES
	SEE DAF NO.
	EFFECTIVE DATE:

INEEL

OU7-10
ACCELERATED RETRIEVAL PROJECT

IMPROVED SITE PLAN

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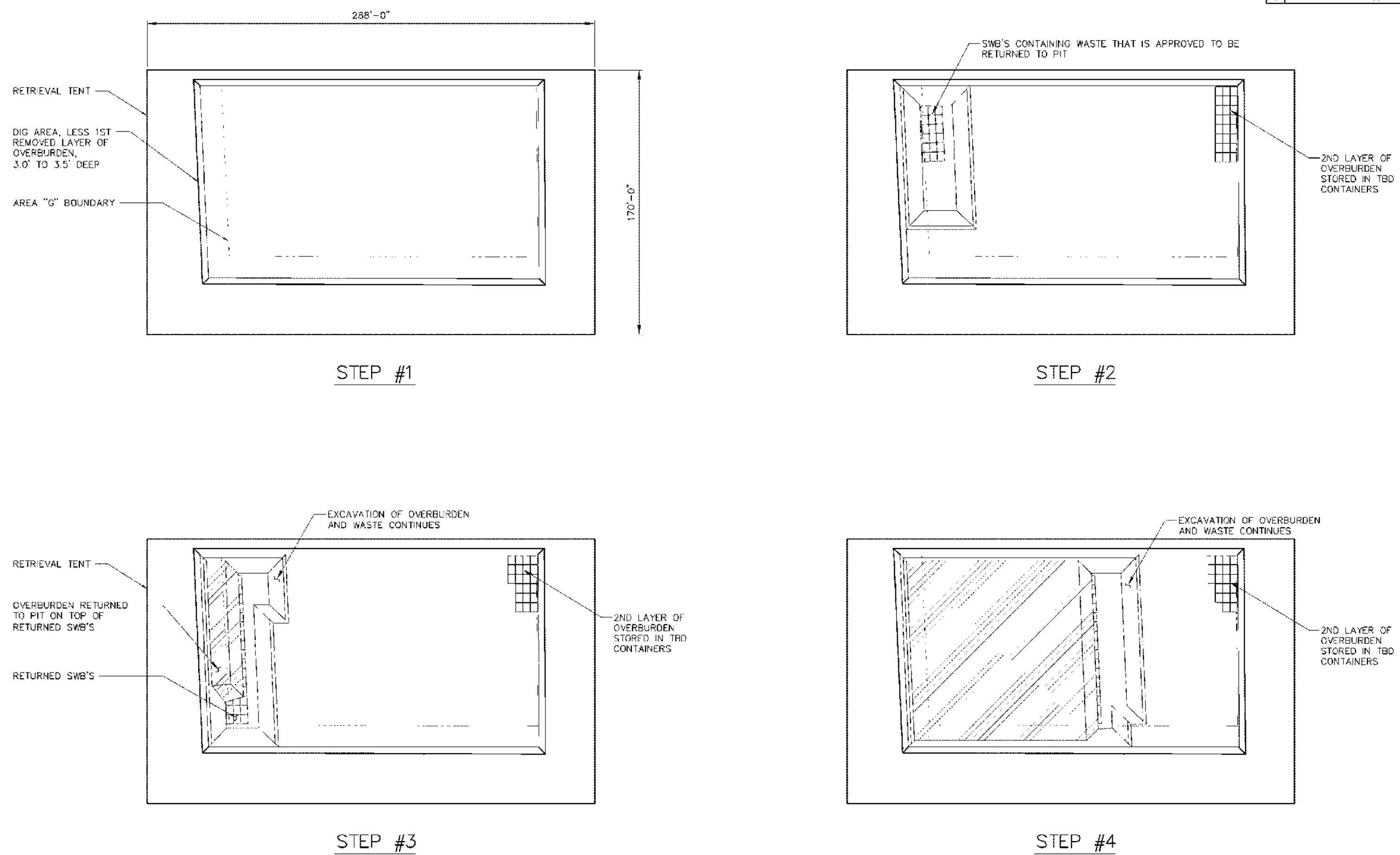
288'-0"
170'-0"
RETRIEVAL TENT
DIG AREA, LESS 1ST REMOVED LAYER OF OVERBURDEN, 3.0' TO 3.5' DEEP
AREA "G" BOUNDARY
STEP #1
SWB'S CONTAINING WASTE THAT IS APPROVED TO BE RETURNED TO PIT
2ND LAYER OF OVERBURDEN STORED IN TBD CONTAINERS
STEP #2
RETRIEVAL TENT
OVERBURDEN RETURNED TO PIT ON TOP OF RETURNED SWB'S
RETURNED SWB'S
EXCAVATION OF OVERBURDEN AND WASTE CONTINUES
2ND LAYER OF OVERBURDEN STORED IN TBD CONTAINERS
STEP #3
EXCAVATION OF OVERBURDEN AND WASTE CONTINUES
2ND LAYER OF OVERBURDEN STORED IN TBD CONTAINERS
STEP #4

EXCAVATION STEPS
SCALE: 1/32" = 1'-0"

RELEASED
FOR RECORD ONLY
DO NOT FABRICATE

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	PROJECT NO. 23927
DESIGN PHASE: CONCEPTUAL	SPEC CODE
SAFETY CATEGORY: CG	EFFECTIVE DATE

INEEL

OU7-10
ACCELERATED RETRIEVAL PROJECT
EXCAVATION STEPS

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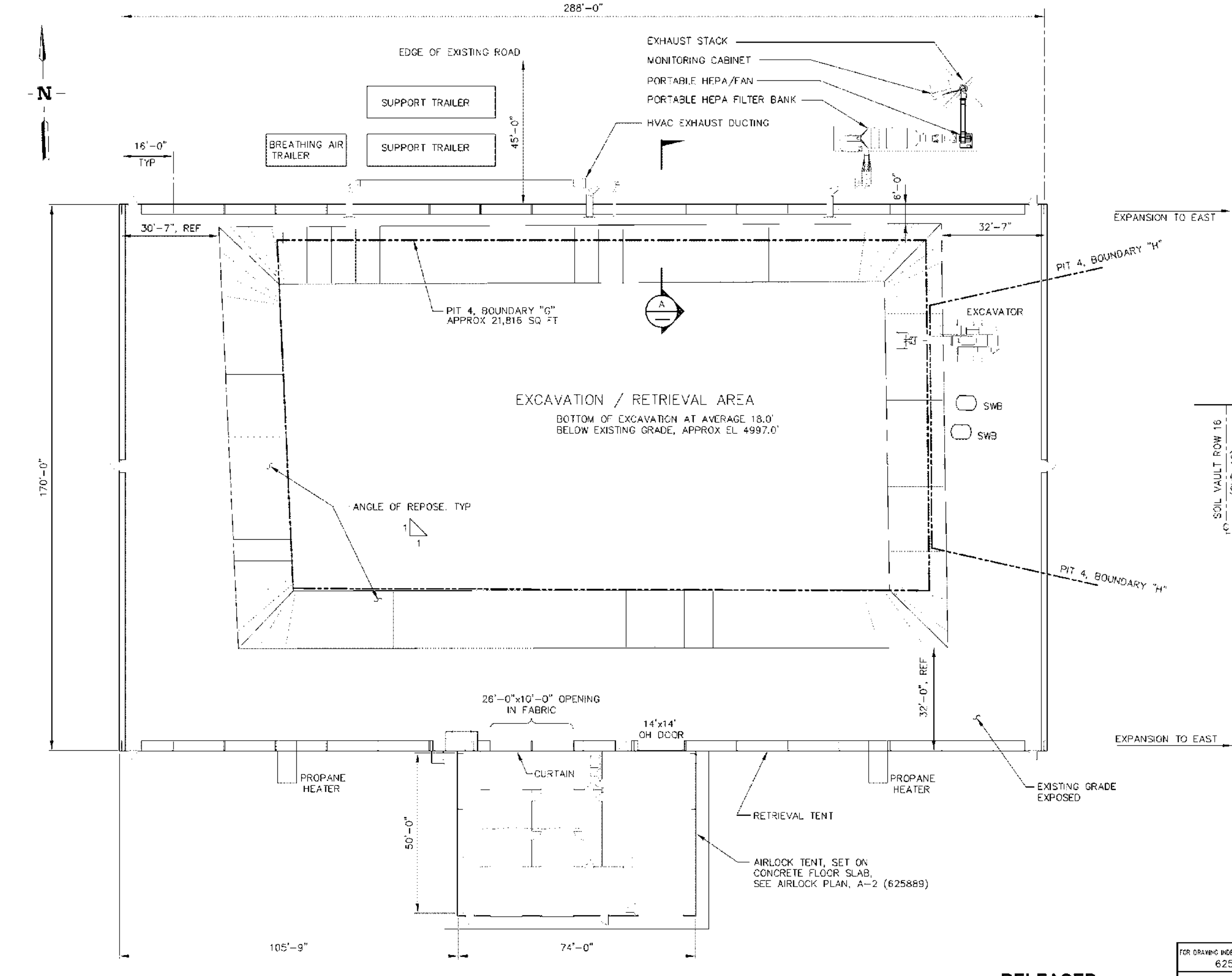
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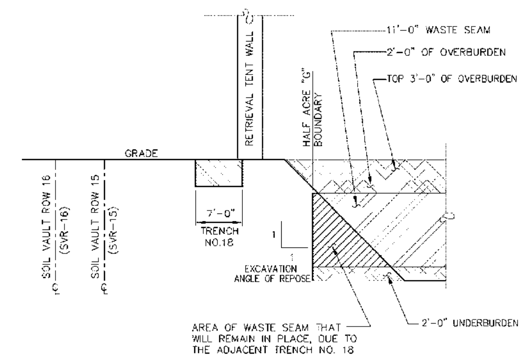
EDGE OF EXISTING ROAD
SUPPORT TRAILER
SUPPORT TRAILER
BREATHING AIR TRAILER
45'-0"
16'-0" TYP
EXHAUST STACK
MONITORING CABINET
PORTABLE HEPA/FAN
PORTABLE HEPA FILTER BANK
HVAC EXHAUST DUCTING
6'-0"
30'-7", REF
32'-7"
EXPANSION TO EAST
PIT 4, BOUNDARY "H"
PIT 4, BOUNDARY "G"
APPROX 21,816 SQ FT
EXCAVATOR
EXCAVATION / RETRIEVAL AREA
BOTTOM OF EXCAVATION AT AVERAGE 18.0' BELOW EXISTING GRADE, APPROX EL 4997.0'
SWB
SWB
ANGLE OF REPOSE, TYP
170'-0"
32'-0", REF
26'-0"x10'-0" OPENING IN FABRIC
14'x14' OH DOOR
CURTAIN
PROPANE HEATER
PROPANE HEATER
EXISTING GRADE EXPOSED
RETRIEVAL TENT
AIRLOCK TENT, SET ON CONCRETE FLOOR SLAB, SEE AIRLOCK PLAN, A-2 (625889)
50'-0"
105'-9"
74'-0"

RETRIEVAL / AIRLOCK TENTS

FLOOR PLAN

SCALE: 1/16" = 1'-0"


RETRIEVAL TENT WALL
HALF ACRE "G" BOUNDARY
11'-0" WASTE SEAM
2'-0" OF OVERBURDEN
TOP 3'-0" OF OVERBURDEN
GRADE
SOIL VAULT ROW 16 (SVR-16)
SOIL VAULT ROW 15 (SVR-15)
7'-0"
TRENCH NO.18
EXCAVATION ANGLE OF REPOSE
2'-0" UNDERBURDEN
AREA OF WASTE SEAM THAT WILL REMAIN IN PLACE, DUE TO THE ADJACENT TRENCH NO. 18

SECTION (A)

SCALE: 1/8" = 1'-0"

NOTES

1. BUILDING VENDER SHALL SUPPLY STANDARD STRUCTURAL FRAME SPACING FOR THIS FOOTPRINT.
2. BUILDING VENDER SHALL PROVIDE STANDARD TRUSS PROFILE PER SPECIFICATIONS.
3. BUILDING VENDER SHALL PROVIDE INTERIOR MEMBRANE LINER.
4. BUILDING VENDER SHALL PROVIDE EXTERIOR MEMBRANE LINER WITH INSULATION.
5. BUILDING VENDER SHALL PROVIDE ALL FRAMING TO SUPPORT HVAC PENETRATIONS.

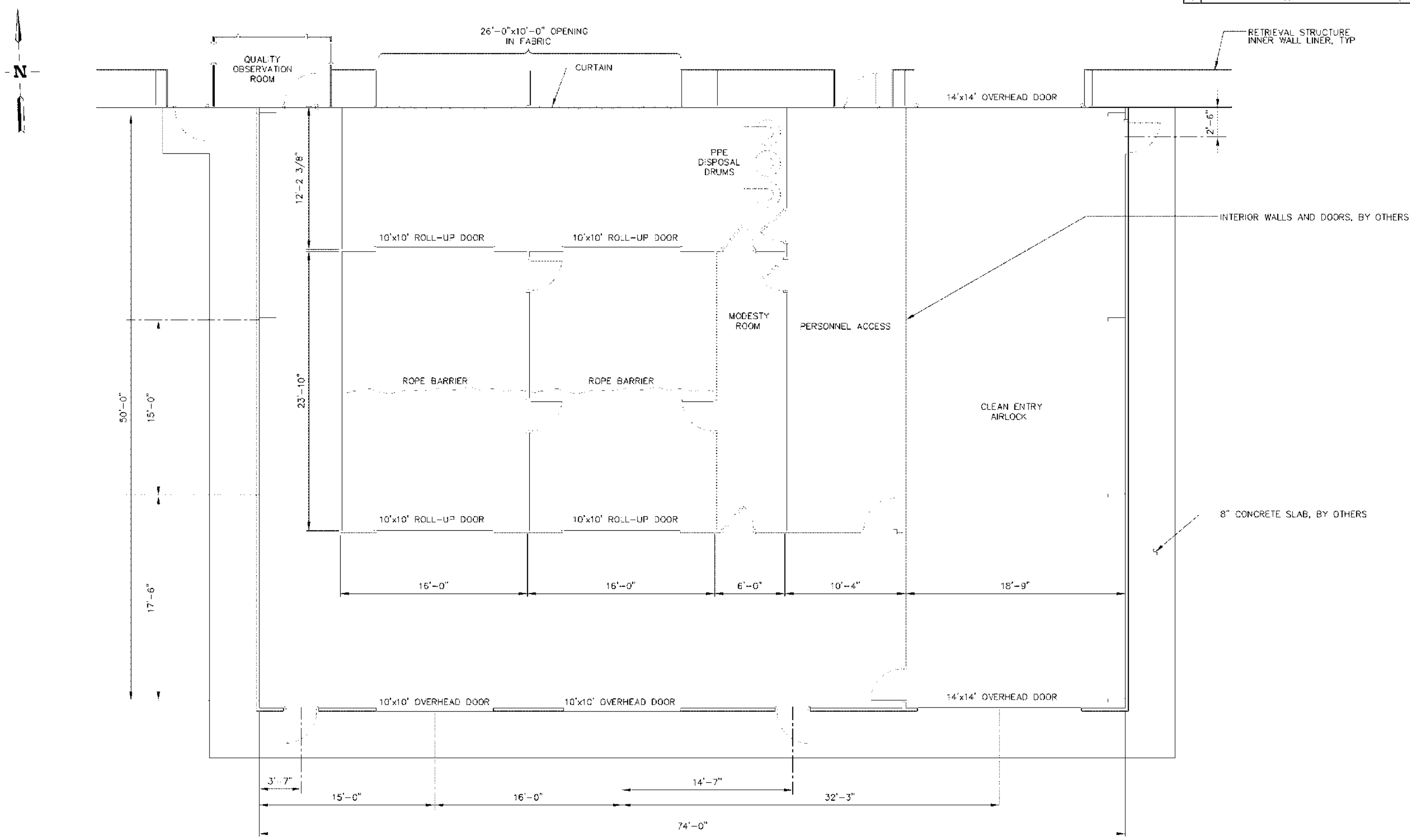
RELEASED
FOR RECORD ONLY
DO NOT FABRICATE

FOR DRAWING INDEX SEE DRAWING NO. 625884
SUBCONTRACT NO. N/A
REQUESTOR: SL AUSTAD
DESIGN: DN NISHIOKA
DRAWN: CA BEHM
PROJECT NO. 23927
DESIGN PHASE: CONCEPTUAL
SAFETY CATEGORY: CG

INEEL

OU7-10
ACCELERATED RETRIEVAL PROJECT
RETRIEVAL / AIRLOCK TENTS
FLOOR PLAN AND SECTION

SIZE D | CAGE CODE 01MF3 | INDEX CODE NUMBER 098 0697 03 090 | DWG 625888 | REV B
SCALE: NOTED | SHEET A-1



26'-0"x10'-0" OPENING IN FABRIC
QUALITY OBSERVATION ROOM
CURTAIN
14'x14' OVERHEAD DOOR
RETRIEVAL STRUCTURE INNER WALL LINER, TYP
2'-6"
PPE DISPOSAL DRUMS
INTERIOR WALLS AND DOORS, BY OTHERS
10'x10' ROLL-UP DOOR
10'x10' ROLL-UP DOOR
12'-2 3/8"
MODESTY ROOM
PERSONNEL ACCESS
ROPE BARRIER
ROPE BARRIER
CLEAN ENTRY AIRLOCK
23'-10"
50'-0"
15'-0"
17'-6"
10'x10' ROLL-UP DOOR
10'x10' ROLL-UP DOOR
8" CONCRETE SLAB, BY OTHERS
16'-0"
16'-0"
6'-0"
10'-4"
18'-9"
10'x10' OVERHEAD DOOR
10'x10' OVERHEAD DOOR
14'x14' OVERHEAD DOOR
3'-7"
14'-7"
15'-0"
16'-0"
32'-3"
74'-0"

AIRLOCK TENT

FLOOR PLAN

SCALE: 1/4" = 1'-0"

RELEASED FOR RECORD ONLY DO NOT FABRICATE

FOR DRAWING INDEX SEE DRAWING NO. 625884	SUBCONTRACT NO. N/A
SCALE 1/4" 1'-0"	REQUESTOR SL AUSTAD
	DESIGN DN NISHIOKA
	DRAWN CA BEHM
	PROJECT NO. 23927
	SPEC CODE
DESIGN PHASE CONCEPTUAL	FOR REVIEW/APPROVAL SIGNATURES SEE EAF NO.
SAFETY CATEGORY: CG	EFFECTIVE DATE:

INEEL

OU7-10 ACCELERATED RETRIEVAL PROJECT

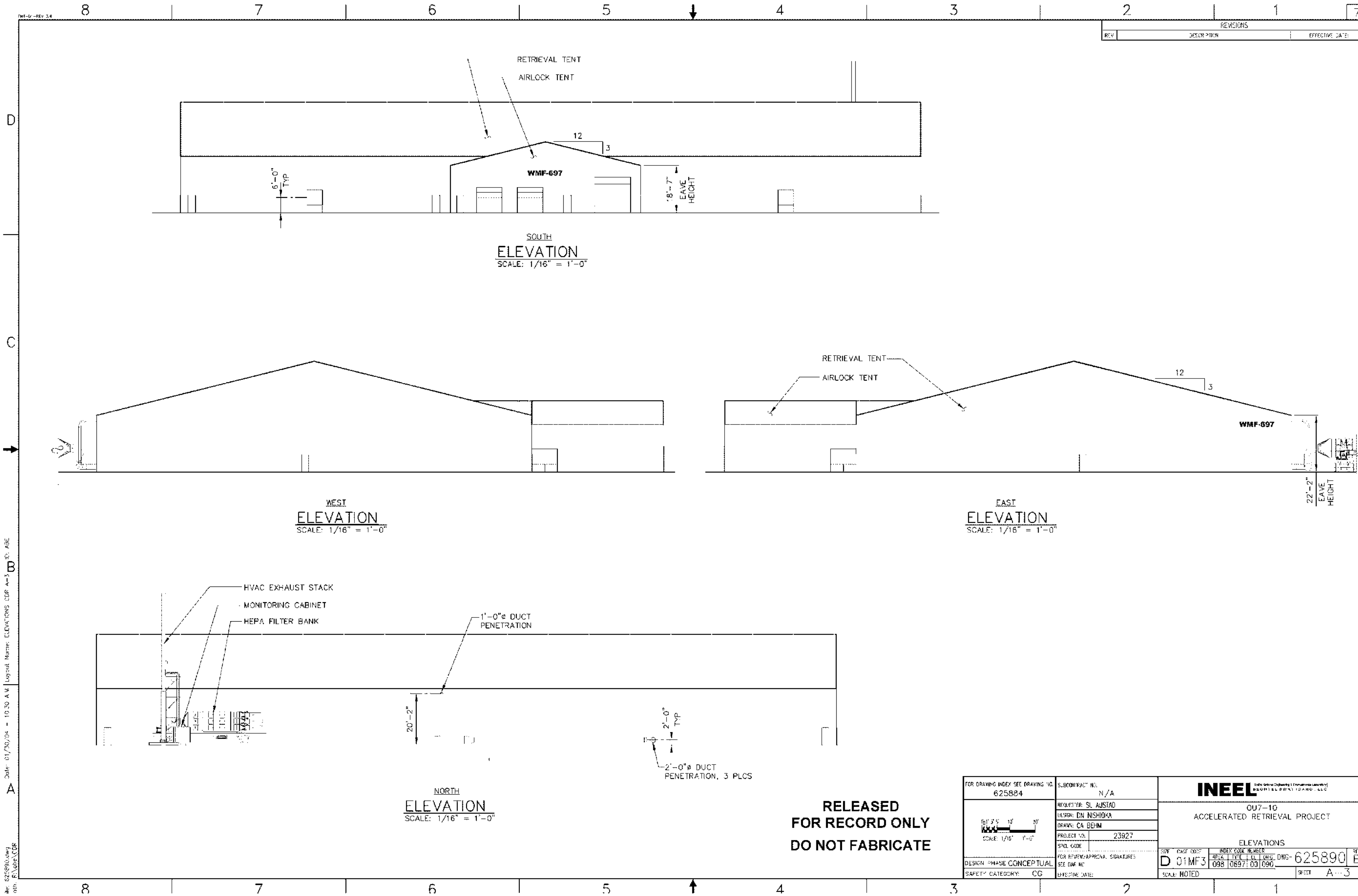
AIRLOCK TENT FLOOR PLAN

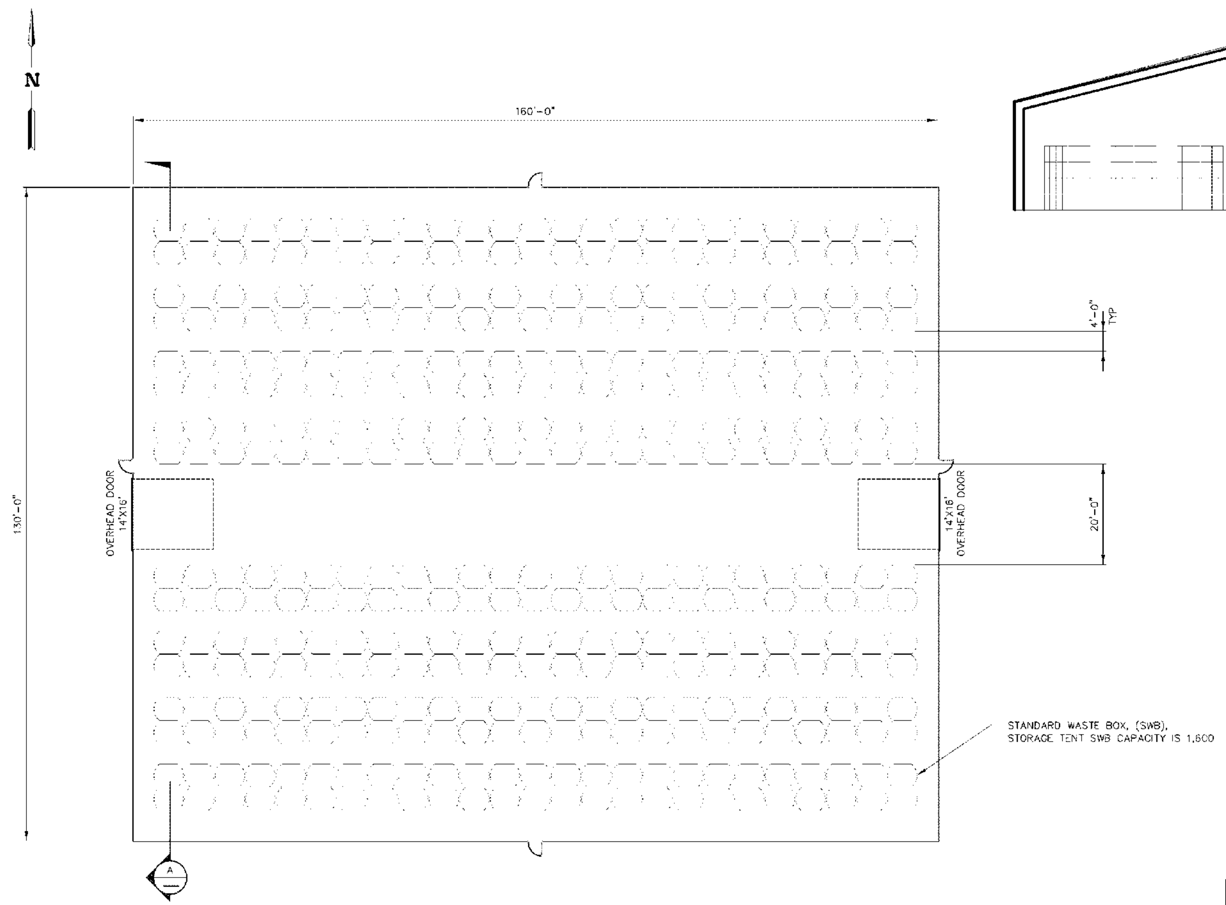
SIZE	CAGE CODE	INDEX CODE NUMBER	DWG	REV
D	01MF3	098 0697 03 090	625889	B

SCALE NOTED — SHEET A-2

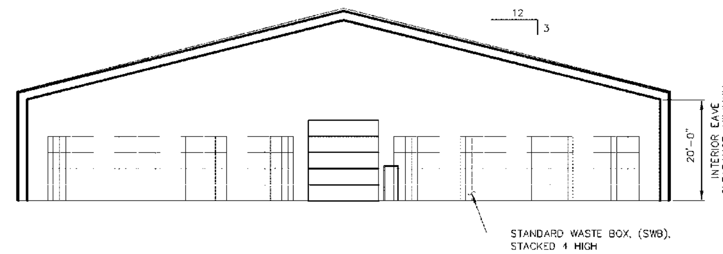
REVISIONS: REV | DESCRIPTION | EFFECTIVE DATE

6


RETRIEVAL TENT
AIRLOCK TENT
12
3
WMF-697
6'-0" TYP
8'-7" EAVE HEIGHT
SOUTH
ELEVATION
SCALE: 1/16" = 1'-0"
RETRIEVAL TENT
AIRLOCK TENT
12
3
WMF-697
22'-2" EAVE HEIGHT
WEST
ELEVATION
SCALE: 1/16" = 1'-0"
EAST
ELEVATION
SCALE: 1/16" = 1'-0"
HVAC EXHAUST STACK
MONITORING CABINET
HEPA FILTER BANK
1'-0"ø DUCT PENETRATION
20'-2"
2'-0" TYP
2'-0"ø DUCT PENETRATION, 3 PLCS
NORTH
ELEVATION
SCALE: 1/16" = 1'-0"
RELEASED
FOR RECORD ONLY
DO NOT FABRICATE
REVISIONS
REV
DESCRIPTION
EFFECTIVE DATE
FOR DRAWING INDEX SEE DRAWING NO. 625884
SUBCONTRACT NO. N/A
REQUESTOR: SL AUSTAD
DESIGN: DN NISHIOKA
DRAWN: CA BEHM
PROJECT NO. 23927
SPEC CODE
FOR REVIEW/APPROVAL SIGNATURES SEE DAR NO.
EFFECTIVE DATE:
DESIGN PHASE CONCEPTUAL
SAFETY CATEGORY: CG
INEEL
OU7-10
ACCELERATED RETRIEVAL PROJECT
ELEVATIONS
SIZE D
CAGE CODE 01MF3
INDEX CODE NUMBER 098 0697 03 090
DWG- 625890
REV B
SCALE: NOTED
SHEET A-3
7



STORAGE TENT FLOOR PLAN



SECTION A

RELEASED
FOR RECORD ONLY
DO NOT FABRICATE

FOR DRAWING INDEX SEE DRAWING NO.	625884
SUBCONTRACT NO.	N/A
REQUESTOR	SL AUSTAD
DESIGN	DN NISHIOKA
DRAWN	CA BEHM
PROJECT NO.	23927
SCALE	3/32" 1'-0"
DESIGN PHASE	CONCEPTUAL
SAFETY CATEGORY	CG

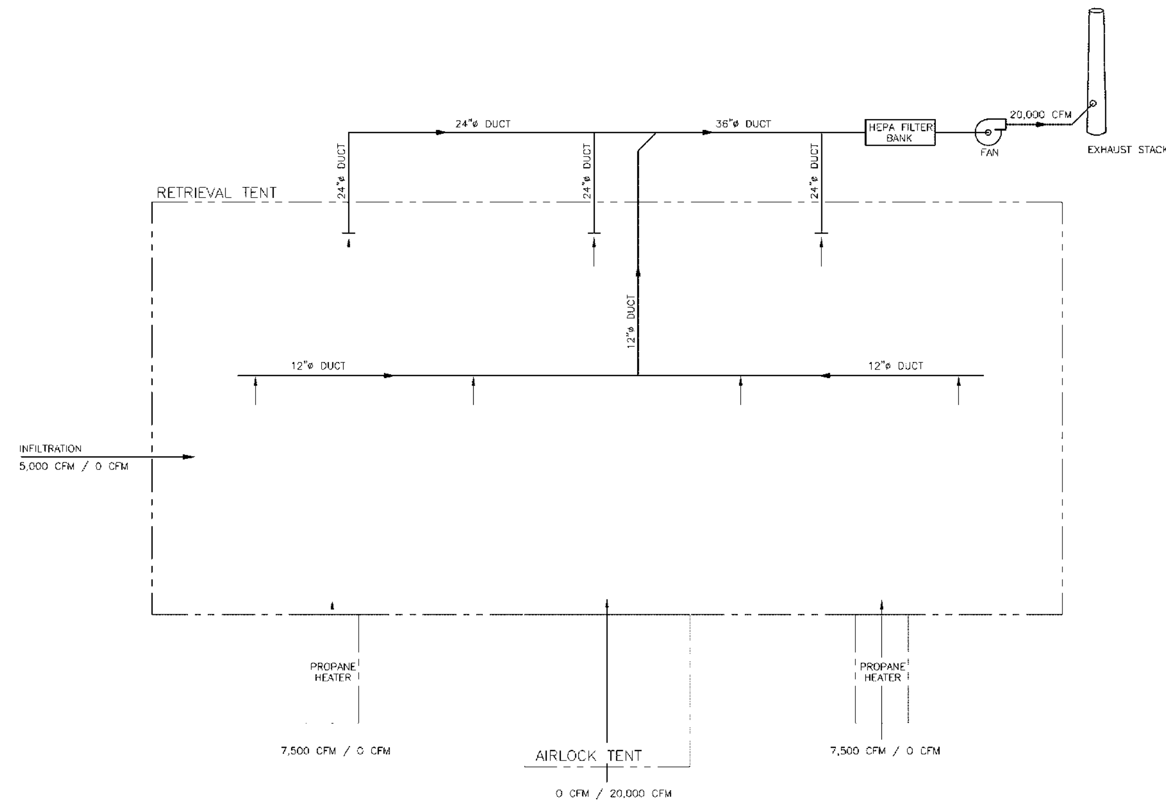
INEEL

OU7-10
ACCELERATED RETRIEVAL PROJECT

STORAGE TENT FLOOR PLAN AND SECTION

SIZE	CAGE CODE	AREA	TYPE	CL	ORG	DWG	REV
D	01MF3	098	9999	03	090	625891	B

SCALE 3/32 = 1'-0" SHEET A-4

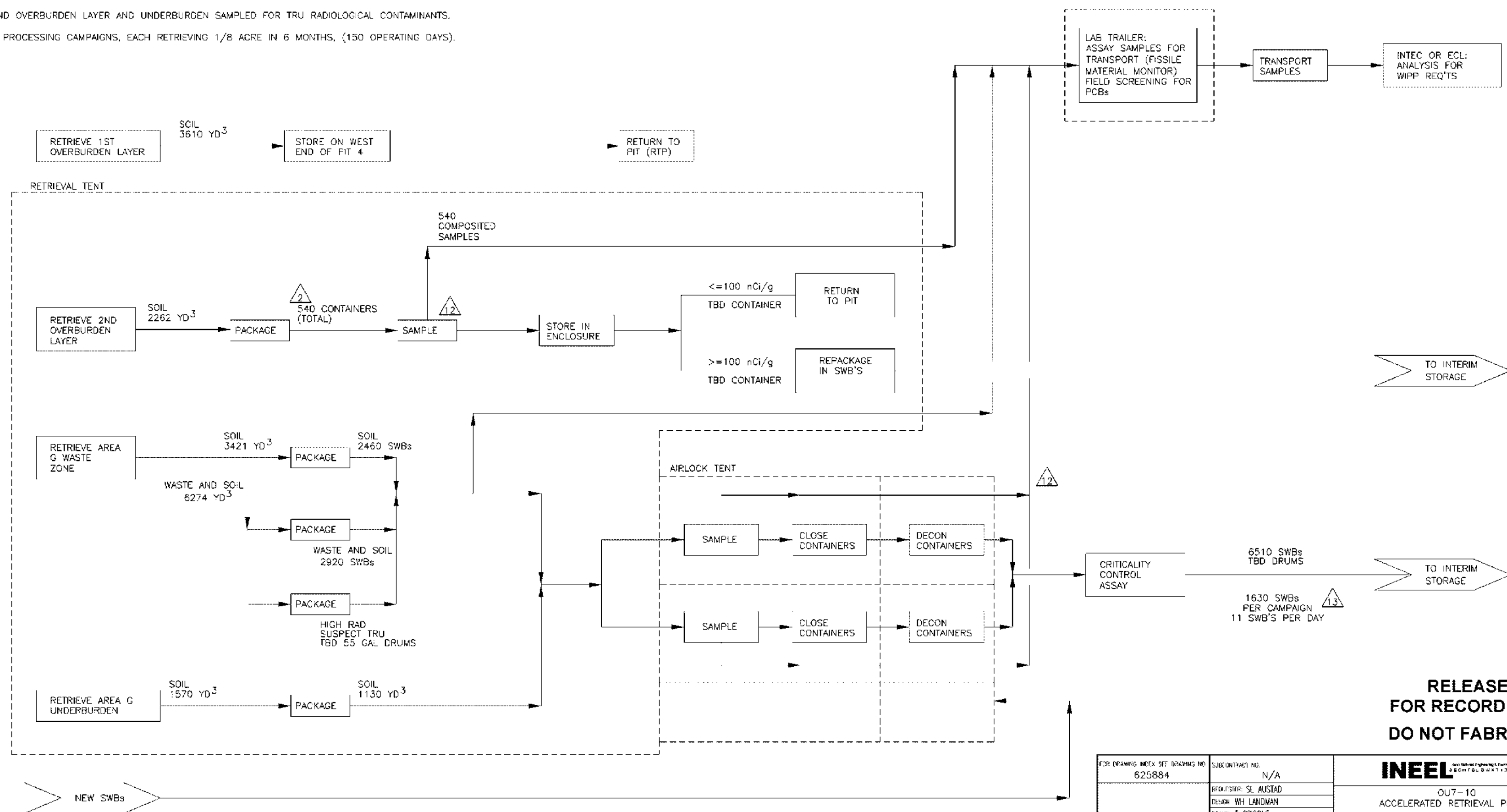


HVAC FLOW DIAGRAM

RELEASED
FOR RECORD ONLY
DO NOT FABRICATE

FOR DRAWING INDEX SEE DRAWING NO. 625884	SUBCONTRACT NO. N/A	INEEL
NO SCALE	REQUESTOR: SL AUSTAD	OU7-10 ACCELERATED RETRIEVAL PROJECT
	DESIGN: LE GUILLEN	HVAC FLOW DIAGRAM
	DRAWN: CA BEHM	
	PROJECT NO. 23927	
DESIGN PHASE: CONCEPTUAL	SPEC CODE	SIZE D, CAGE CODE 01MF3, INDEX CODE NUMBER 098 0697 20 090, DWG- 625892, REV B
SAFETY CATEGORY: CG	EFFECTIVE DATE:	SCALE: NONE, SHEET HV-1

NOTES:
1. 1ST OVERBURDEN LAYER CHARACTERIZED AND REMOVED PRIOR TO ERECTION OF BUILDING.
2. (△2) 2ND OVERBURDEN LAYER PACKAGED IN 5X5X5 FT CONTAINERS.
3. 2ND OVERBURDEN CONTAINER COUNT IS TOTAL NUMBER OF CONTAINERS. CONTAINERS WILL BE RECYCLED SO "ON-HAND" INVENTORY IS LESS.
4. WASTE ZONE DEPTH ASSUMED TO BE 11 FT.
5. WIPP CHARACTERIZATION AND CERTIFICATION FOR BURIED WASTE IS STILL BEING DEVELOPED.
6. NO VE AT DIGFACE-USE RTR AND MODIFIED CCP GLOVEBOX OR MODIFIED GEM FOR CONFIRMATORY VE.
7. LOW TEMPERATURE THERMAL DESORPTION (LTTD) FOR VOC REMOVAL.
8. INITIAL CRITICALITY CONTROL ASSAY WILL BE LEASED. USE <=100 nCi/g DEVICE LATER.
9. TOTAL VOLUMES BASED ON ENTIRE AREA G RETRIEVAL.
10. SWB CAPACITIES: 58 FT3 USABLE VOLUME OR 4,300 LBM MAX GROSS WEIGHT.
11. INTERIM STORAGE FACILITY INITIALLY SIZED FOR 1/2 OF THE TOTAL NUMBER OF AREA G CONTAINERS.
12. (△12) 2ND OVERBURDEN LAYER AND UNDERBURDEN SAMPLED FOR TRU RADIOLOGICAL CONTAMINANTS.
13. (△13) 4 PROCESSING CAMPAIGNS, EACH RETRIEVING 1/8 ACRE IN 6 MONTHS, (150 OPERATING DAYS).



RETRIEVE 1ST OVERBURDEN LAYER
SOIL 3610 YD3
STORE ON WEST END OF PIT 4
RETURN TO PIT (RTP)
RETRIEVAL TENT
540 COMPOSITED SAMPLES
RETRIEVE 2ND OVERBURDEN LAYER
SOIL 2262 YD3
PACKAGE
540 CONTAINERS (TOTAL)
SAMPLE
STORE IN ENCLOSURE
<=100 nCi/g TBD CONTAINER
RETURN TO PIT
>=100 nCi/g TBD CONTAINER
REPACKAGE IN SWB'S
LAB TRAILER: ASSAY SAMPLES FOR TRANSPORT (FISSILE MATERIAL MONITOR) FIELD SCREENING FOR PCBs
TRANSPORT SAMPLES
INTEC OR ECL: ANALYSIS FOR WIPP REQ'TS
TO INTERIM STORAGE
RETRIEVE AREA G WASTE ZONE
SOIL 3421 YD3
WASTE AND SOIL 6274 YD3
SOIL 2460 SWBs
WASTE AND SOIL 2920 SWBs
HIGH RAD SUSPECT TRU TBD 55 GAL DRUMS
AIRLOCK TENT
SAMPLE
CLOSE CONTAINERS
DECON CONTAINERS
CRITICALITY CONTROL ASSAY
6510 SWBs TBD DRUMS
1630 SWBs PER CAMPAIGN 11 SWB'S PER DAY
RETRIEVE AREA G UNDERBURDEN
SOIL 1570 YD3
SOIL 1130 YD3
NEW SWBs

RELEASED FOR RECORD ONLY DO NOT FABRICATE

FOR DRAWING INDEX SET DRAWING NO	625884
SUBCONTRACT NO.	N/A
REQUESTER	SL AUSTAD
DESIGN	WH LANDMAN
DRAWN	T CRIDDLE
PROJECT NO.	23927
SCALE	NO SCALE
DESIGN PHASE	CONCEPTUAL
SAFETY CATEGORY	CG

INEEL

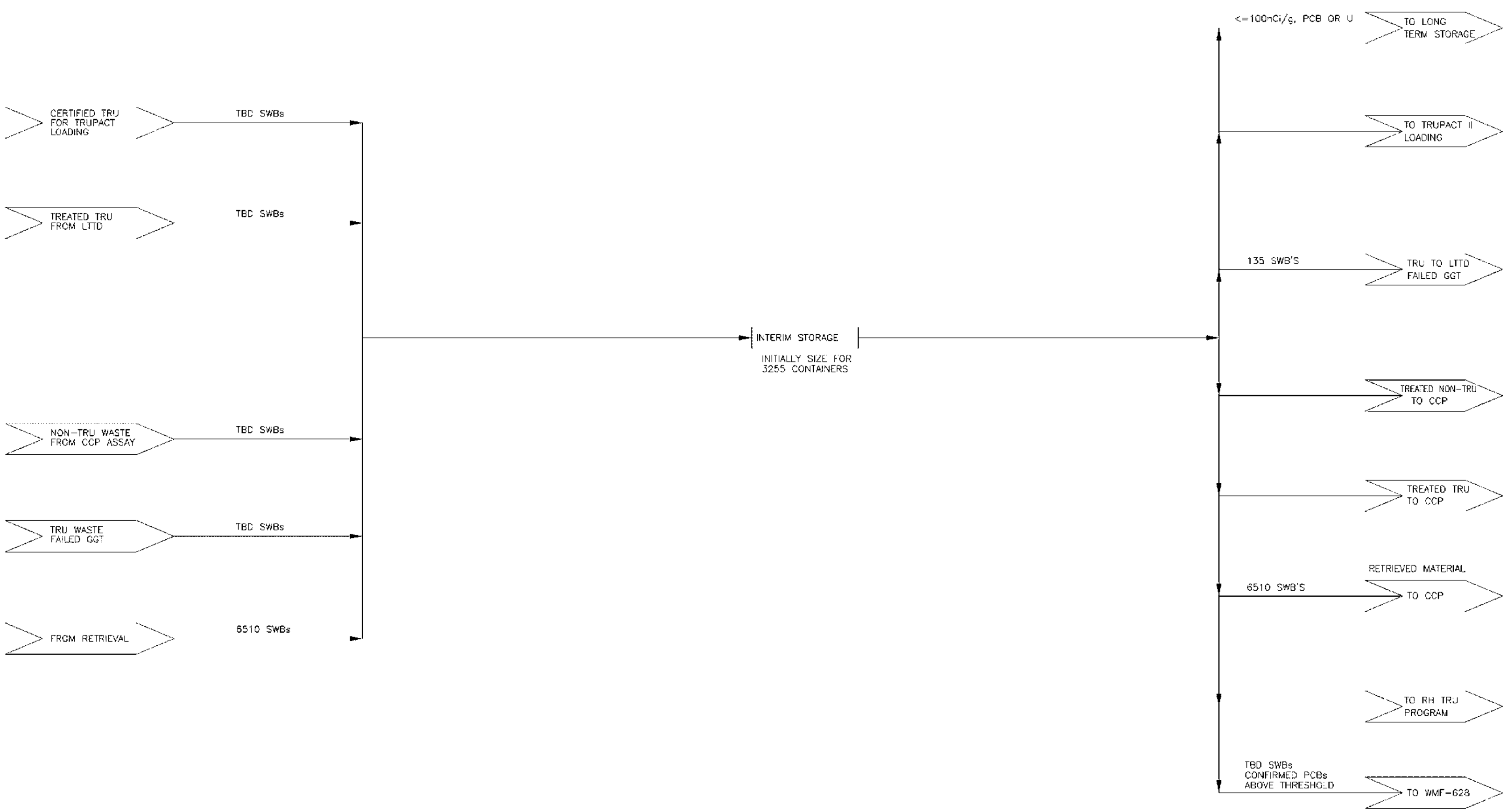
OU7-10
ACCELERATED RETRIEVAL PROJECT

BLOCK FLOW
RETRIEVAL OPERATIONS

SIZE D | CAGE CODE 01MF3 | INDEX CODE NUMBER 098 9999 38 090 | DWG 625893 | REV B

SCALE NONE | SHEET BF-1

NOTES:
1. INTERIM STORAGE INITIALLY SIZED FOR ALL CONTAINERS FROM 1/2 OF AREA G (1/4 ACRE, APPROX).



RELEASED
FOR RECORD ONLY
DO NOT FABRICATE

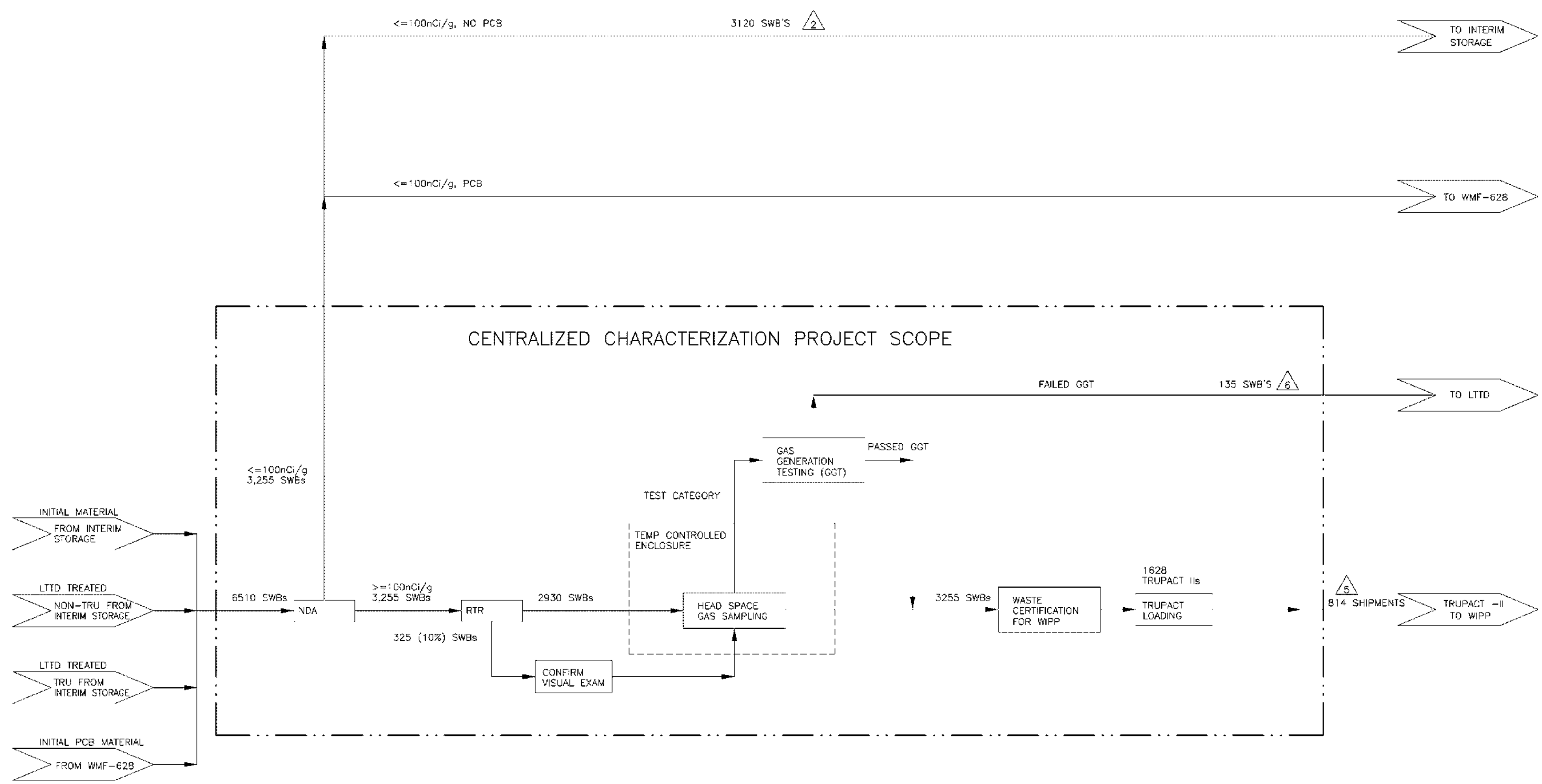
FOR DRAWING INDEX SEE DRAWING NO. 625884	SUBCONTRACT NO. N/A	INEEL
NO SCALE	REQUESTOR: SL AUSTAD	OU7-10 ACCELERATED RETRIEVAL PROJECT
	DESIGN: WH LANDMAN	BLOCK FLOW
	DRAWN: T CROOLE	INTERIM STORAGE FLOWS
	PROJECT NO. 23927	SIZE D CAGE CODE 01MF3 INDEX CODE NUMBER 098 9999 38 090 DWG- 625894 REV B
DESIGN PHASE CONCEPTUAL	FOR REVIEW/APPROVAL SIGNATURES SEE DAR NO.	SCALE: NONE SHEET BF-2
SAFETY CATEGORY: CG	EFFECTIVE DATE:	

REVISIONS

REV	DESCRIPTION	EFFECTIVE DATE

11

NOTES:
1. CENTRAL CHARACTERIZATION PROJECT (CCP) REAL TIME RADIOGRAPHY (RTR) AND NON-DESTRUCTIVE ASSAY (NDA) CAPABILITY IS CERTIFIABLE ON THE RETRIEVED WASTE MATRIX IN STANDARD WASTE BOXES (SWBs).
2. HALF OF RETRIEVED MATERIAL IS TRU.
3. TRU MATERIAL FAILING GAS GENERATION TEST (GGT) CAN BE TREATED USING LOW TEMPERATURE THERMAL DESORPTION (LTTD).
4. TWO SWBs DO NOT EXCEED THE TRUPACT II WEIGHT LIMIT.
5. TWO TRUPACT IIs PER SHIPMENT DUE TO TRANSPORTER LOAD LIMIT.
6. ASSUME ALL TRU VOC SWB'S FAIL GGT.



<=100nCi/g, NC PCB
3120 SWB'S 2
TO INTERIM STORAGE
<=100nCi/g, PCB
TO WMF-628
CENTRALIZED CHARACTERIZATION PROJECT SCOPE
FAILED GGT
135 SWB'S 6
TO LTTD
GAS GENERATION TESTING (GGT)
PASSED GGT
<=100nCi/g
3,255 SWBs
TEST CATEGORY
INITIAL MATERIAL
FROM INTERIM STORAGE
TEMP CONTROLLED ENCLOSURE
LTTD TREATED
NON-TRU FROM INTERIM STORAGE
6510 SWBs
NDA
>=100nCi/g
3,255 SWBs
RTR
2930 SWBs
HEAD SPACE GAS SAMPLING
3255 SWBs
WASTE CERTIFICATION FOR WIPP
1628 TRUPACT IIs
TRUPACT LOADING
5
814 SHIPMENTS
TRUPACT -II TO WIPP
325 (10%) SWBs
LTTD TREATED
TRU FROM INTERIM STORAGE
CONFIRM VISUAL EXAM
INITIAL PCB MATERIAL
FROM WMF-628

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DO NOT FABRICATE

FOR DRAWING INDEX SET DRAWING NO	625884
	NO SCALE
DESIGN PHASE	CONCEPTUAL
SAFETY CATEGORY	CG
SUBCONTRACT NO.	N/A
REQUESTER	SL AUSTAD
DESIGN	WH LANDMAN
DRAWN	T CRIDDLE
PROJECT NO.	23927

INEEL

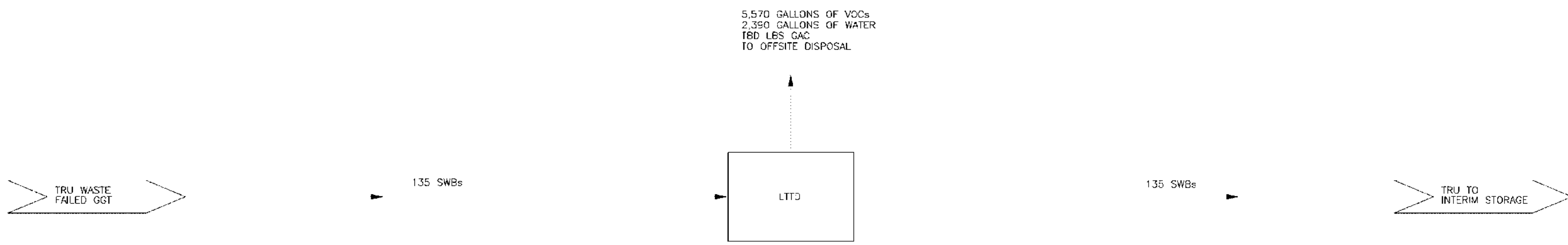
OU7-10
ACCELERATED RETRIEVAL PROJECT

BLOCK FLOW
CCP OPERATIONS

SIZE D | CAGE CODE 01MF3 | INDEX CODE NUMBER 098 9999 38 090 | DWG 625895 | REV B
SCALE NONE | SHEET BF-3

12

NOTES:
1. 452 55-GALLON DRUMS OF 743 SLUDGE OR 744 SETUPS WERE DISPOSED IN AREA G.
2. ASSUME ADDITIONAL CONTAMINATED VOLUME EQUAL TO THE ORIGINAL DISPOSED VOLUME.
3. ADDITIONAL CONTAMINATED MATERIAL IS SOIL.
4. ASSUME ALL VOCs ARE STILL PRESENT IN THE WASTE (CONSERVATIVE).
5. SIZING BASED ON TREATING ALL TRU CONTAINERS WITH VOC.

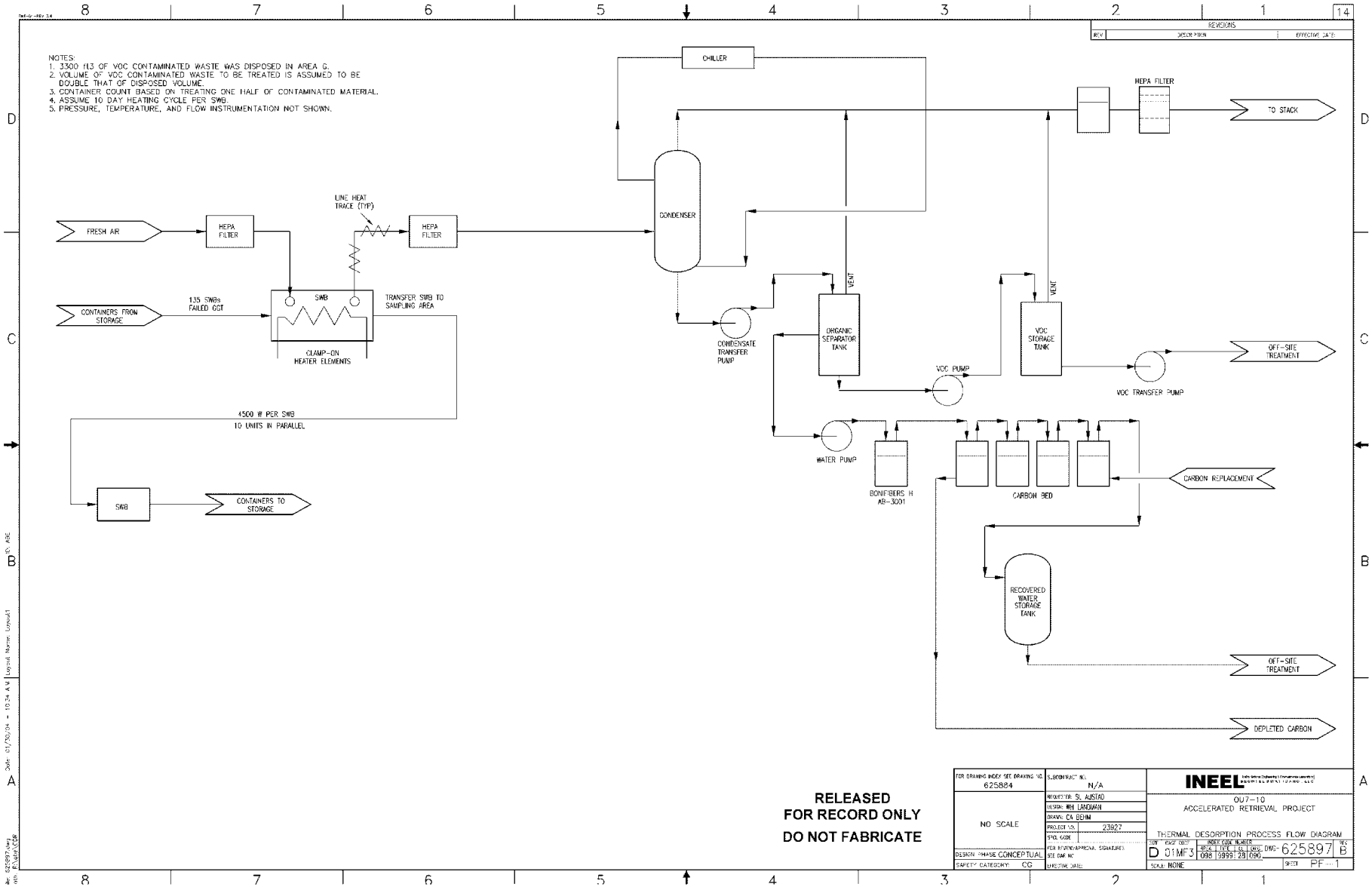


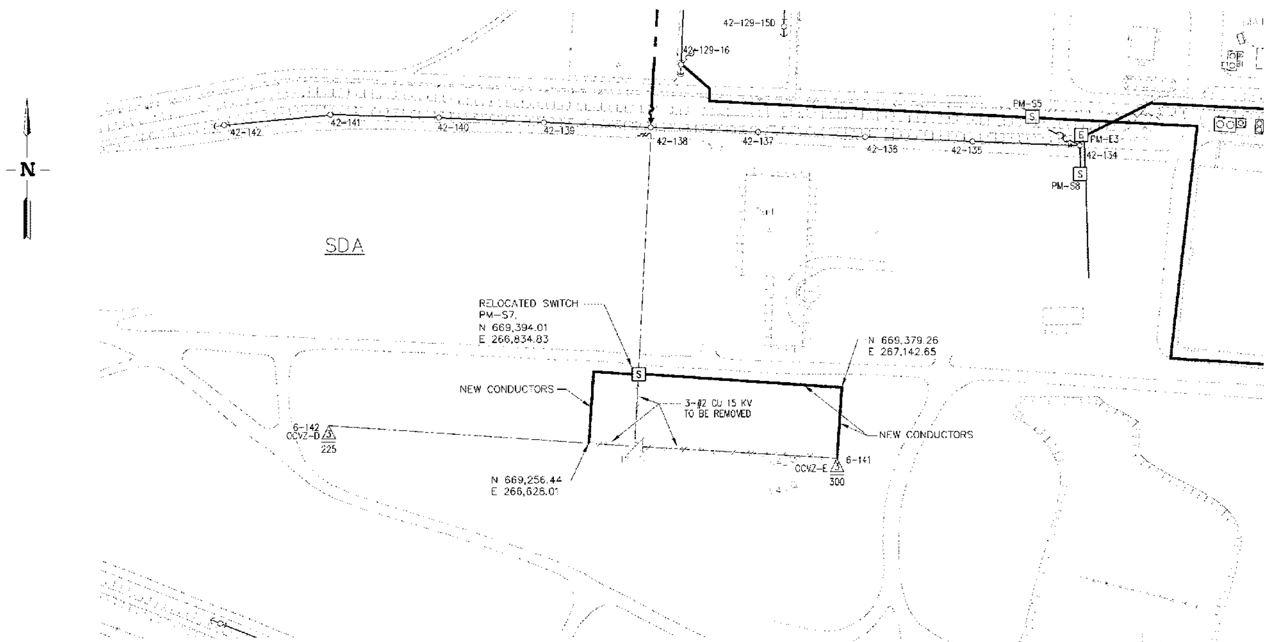
RELEASED
FOR RECORD ONLY
DO NOT FABRICATE

FOR DRAWING INDEX SEE DRAWING NO. 625884
NO SCALE
DESIGN PHASE CONCEPTUAL
SAFETY CATEGORY: CG
SUBCONTRACT NO. N/A
REQUESTOR: SL AUSTAD
DESIGN: WH LANDMAN
DRAWN: T CROOLE
PROJECT NO. 23927

INEEL
OU7-10
ACCELERATED RETRIEVAL PROJECT
BLOCK FLOW
LTTD FLOWS
SIZE D CAGE CODE 01MF3 INDEX CODE NUMBER 098 9999 39 090 DWG- 625896 REV B
SCALE: NONE SHEET BF-4

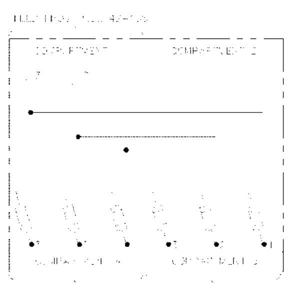
13


NOTES:
1. 3300 ft3 OF VOC CONTAMINATED WASTE WAS DISPOSED IN AREA G.
2. VOLUME OF VOC CONTAMINATED WASTE TO BE TREATED IS ASSUMED TO BE DOUBLE THAT OF DISPOSED VOLUME.
3. CONTAINER COUNT BASED ON TREATING ONE HALF OF CONTAMINATED MATERIAL.
4. ASSUME 10 DAY HEATING CYCLE PER SWB.
5. PRESSURE, TEMPERATURE, AND FLOW INSTRUMENTATION NOT SHOWN.
REVISIONS
REV
DESCRIPTION
EFFECTIVE DATE
CHILLER
HEPA FILTER
TO STACK
CONDENSER
LINE HEAT TRACE (TYP)
FRESH AIR
HEPA FILTER
HEPA FILTER
CONTAINERS FROM STORAGE
135 SWBs FAILED GGT
SWB
TRANSFER SWB TO SAMPLING AREA
CLAMP-ON HEATER ELEMENTS
CONDENSATE TRANSFER PUMP
ORGANIC SEPARATOR TANK
VENT
VOC STORAGE TANK
VENT
VOC PUMP
VOC TRANSFER PUMP
OFF-SITE TREATMENT
4500 W PER SWB
10 UNITS IN PARALLEL
WATER PUMP
BONIFIBERS H AB-3001
CARBON BED
CARBON REPLACEMENT
SWB
CONTAINERS TO STORAGE
RECOVERED WATER STORAGE TANK
OFF-SITE TREATMENT
DEPLETED CARBON
RELEASED
FOR RECORD ONLY
DO NOT FABRICATE
FOR DRAWING INDEX SEE DRAWING NO. 625884
SUBCONTRACT NO. N/A
NO SCALE
REQUESTOR: SL AUSTAD
DESIGN: WH LANDMAN
DRAWN: CA BEHM
PROJECT NO. 23927
SYS. CODE
DESIGN PHASE: CONCEPTUAL
SAFETY CATEGORY: CG
FOR REVIEW/APPROVAL SIGNATURES
SEE DAP NO.
EFFECTIVE DATE:
INEEL
OU7-10
ACCELERATED RETRIEVAL PROJECT
THERMAL DESORPTION PROCESS FLOW DIAGRAM
DWG
D 01MF3
INDEX CODE NUMBER
AREA 098 | TYPE 5999 | SEQ. 28 | ORIG. 690
DRG-625897
REV B
SCALE: NONE
SHEET PF-1



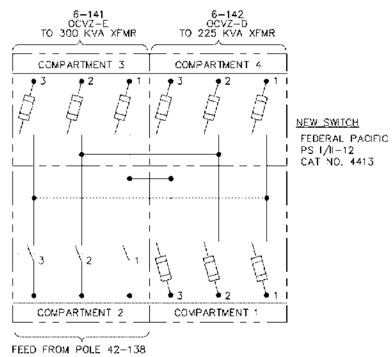
12.5 KV POWER DISTRIBUTION SITE PLAN

SCALE: 1" = 100.0'



EXISTING

SWITCH PM-S7



NEW

SWITCH PM-S7

NOTES

1. COORDINATE DATUM: RWMC SITE SPECIFIC.

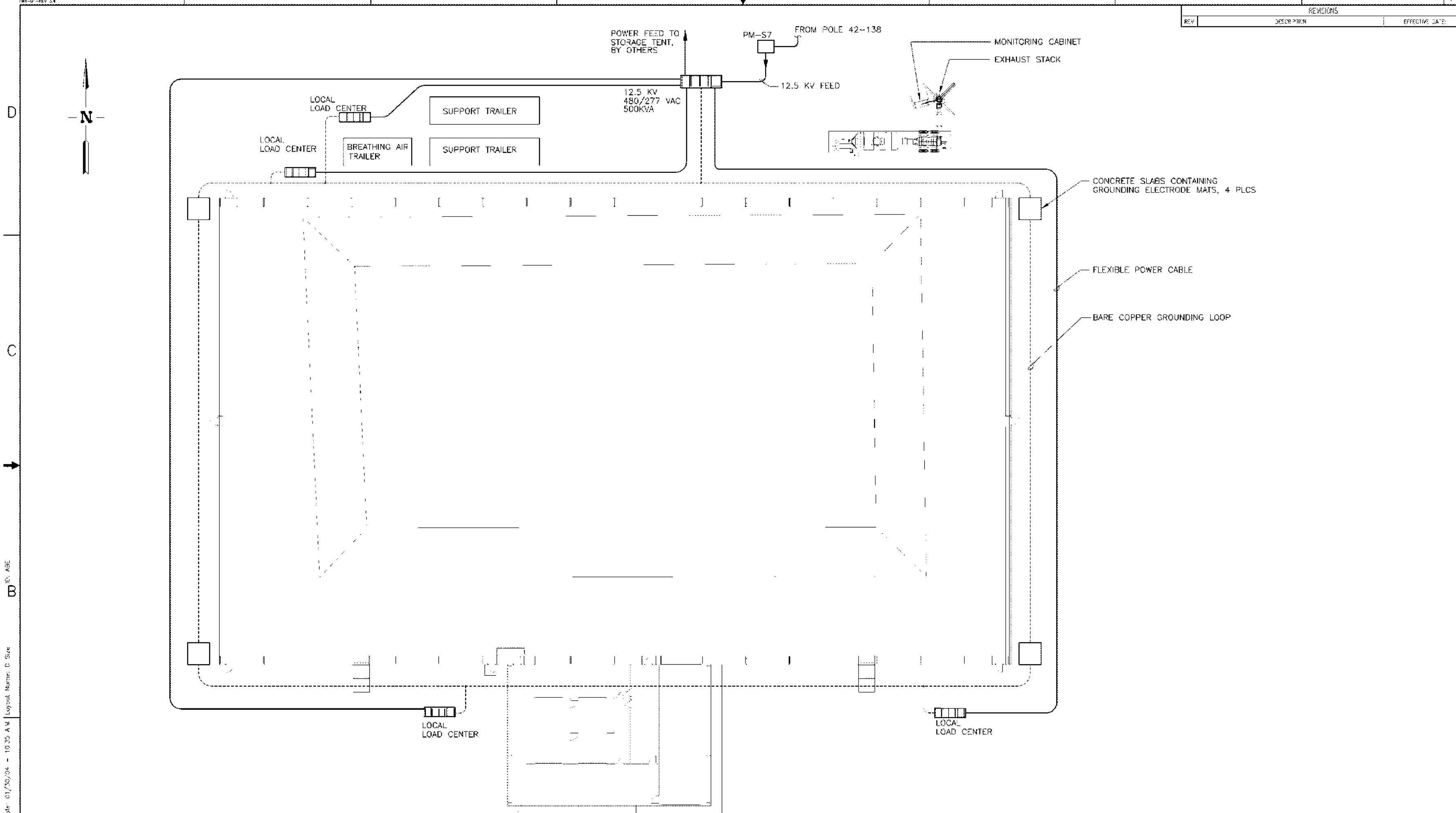
RELEASED FOR RECORD ONLY
DO NOT FABRICATE

REV	DESCRIPTION	EFFECTIVE DATE

FOR DRAWING INDEX SEE DRAWING NO. 625884
SUBCONTRACT NO. N/A
REQUESTOR: SL AUSTAD
DESIGN: TM HIPP
DRAWN: CA BEHM
PROJECT NO. 23927
DESIGN PHASE CONCEPTUAL
SAFETY CATEGORY: CG
SCALE: 1" = 100.0'

INEEL
OU7-10
ACCELERATED RETRIEVAL PROJECT
12.5 KV POWER DISTRIBUTION SITE PLAN
SIZE D CAGE CODE 01MF3 INDEX CODE NUMBER 098 0400 10 090 DWG 625898 REV B
SCALE NOTED SHEET E-1

15



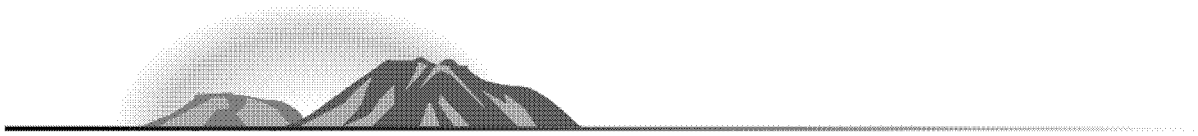
480 VAC POWER DISTRIBUTION AND GROUNDING PLAN
SCALE: 1/16" = 1'-0"

RELEASED FOR RECORD ONLY DO NOT FABRICATE

FOR DRAWING INDEX SEE DRAWING NO. 625884	SUBCONTRACT NO. N/A
SCALE 1/16" 1'-0"	REQUESTOR: SL AUSTAD
	DESIGN: TM HIPP
	DRAWN: CA BEHM
	PROJECT NO. 23927
	SPEC CODE
DESIGN PHASE CONCEPTUAL	FOR REVIEW/APPROVAL SIGNATURES SEE EAR NO.
SAFETY CATEGORY: CG	EFFECTIVE DATE:

INEEL
OU7-10
ACCELERATED RETRIEVAL PROJECT
480 VAC POWER DISTRIBUTION AND GROUNDING PLAN
SIZE D CAGE CODE 01MF3 INDEX CODE NUMBER 098 0697 10 090 DWG- 625899 REV B
SCALE NOTED SHEET E-2

16

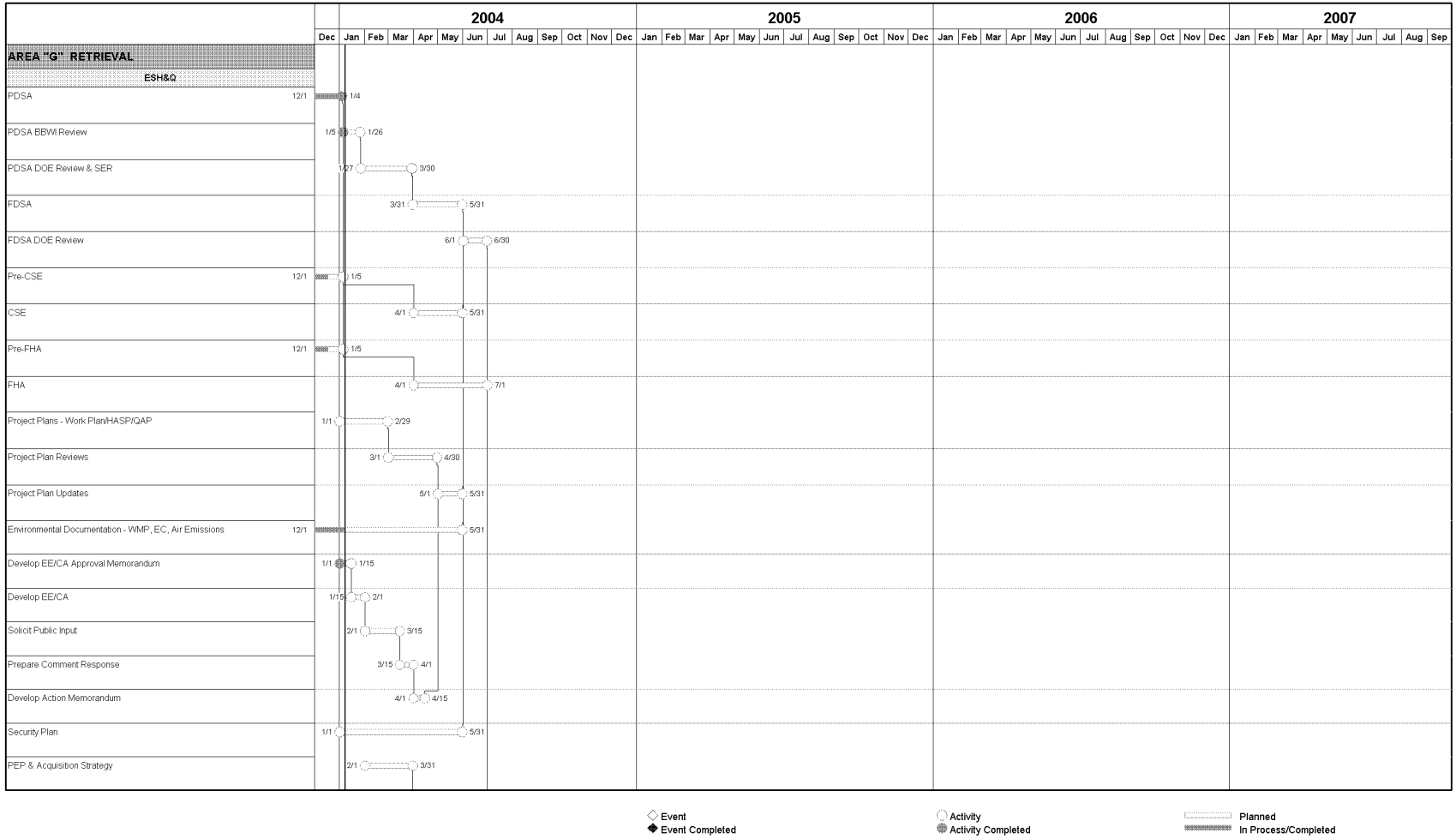


Appendix D

Schedule

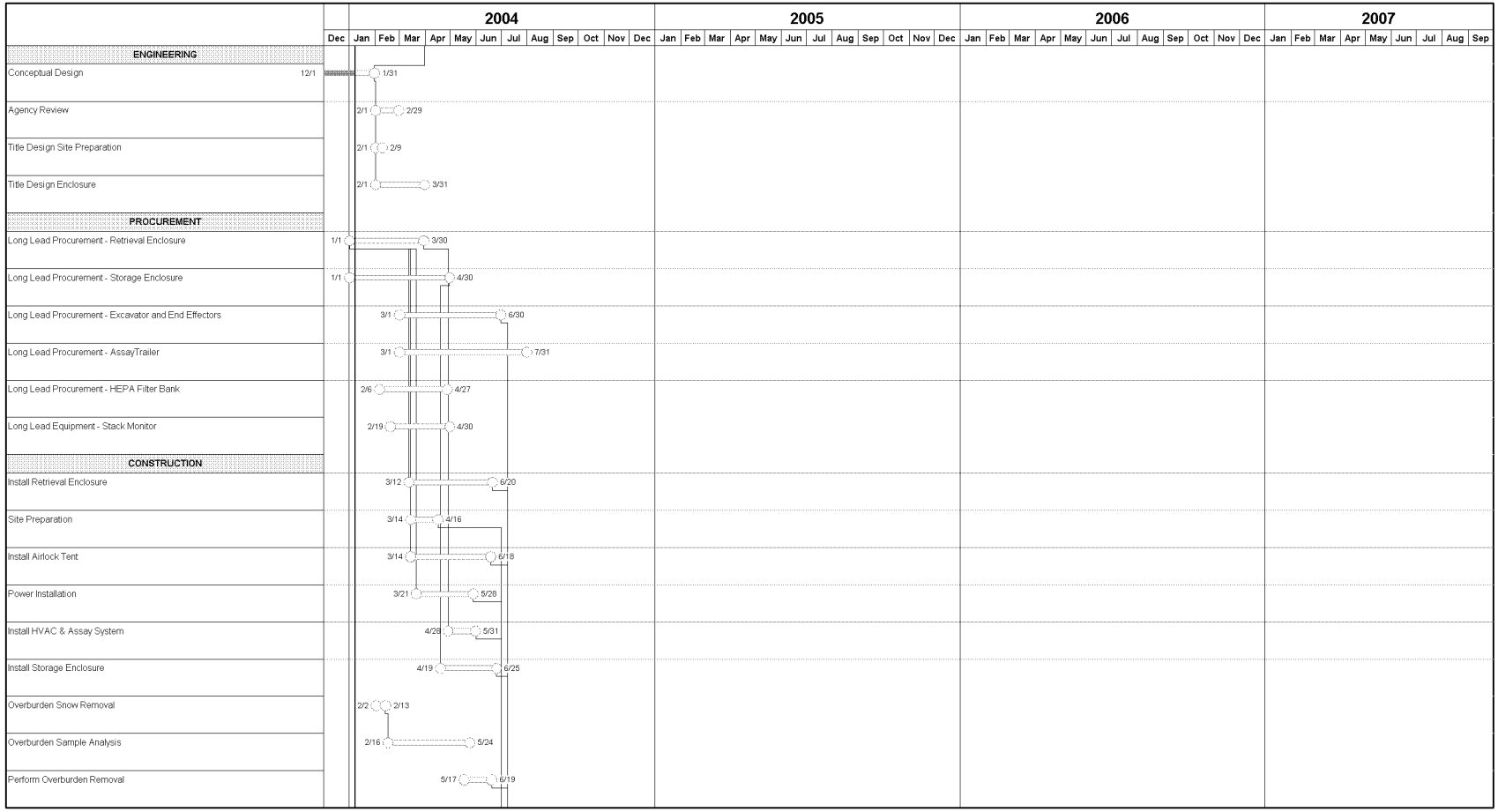
Preliminary Summary Schedule
for
Accelerated Retrieval Project

1/20/04



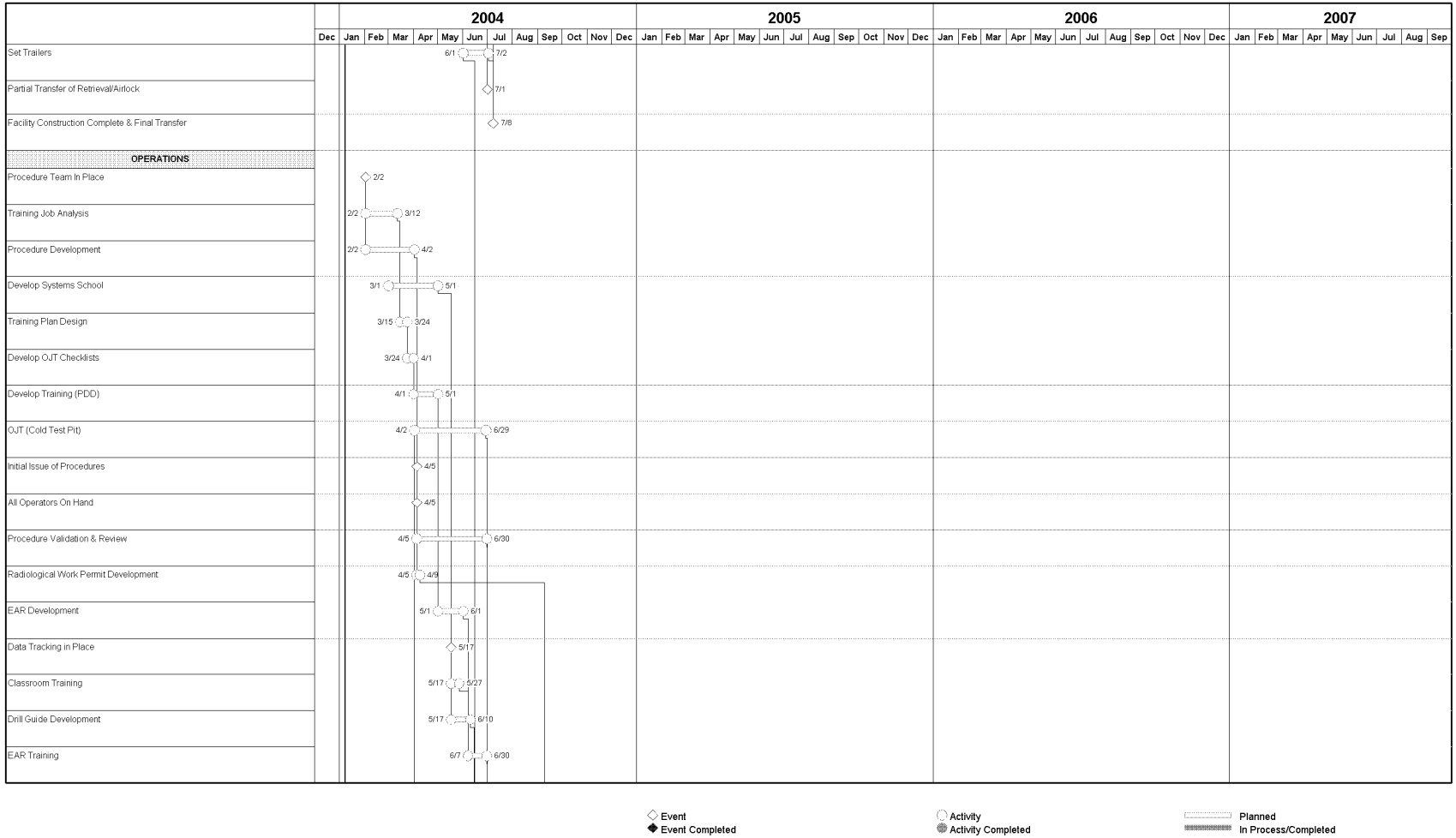
Preliminary Summary Schedule
for
Accelerated Retrieval Project

1/14/04



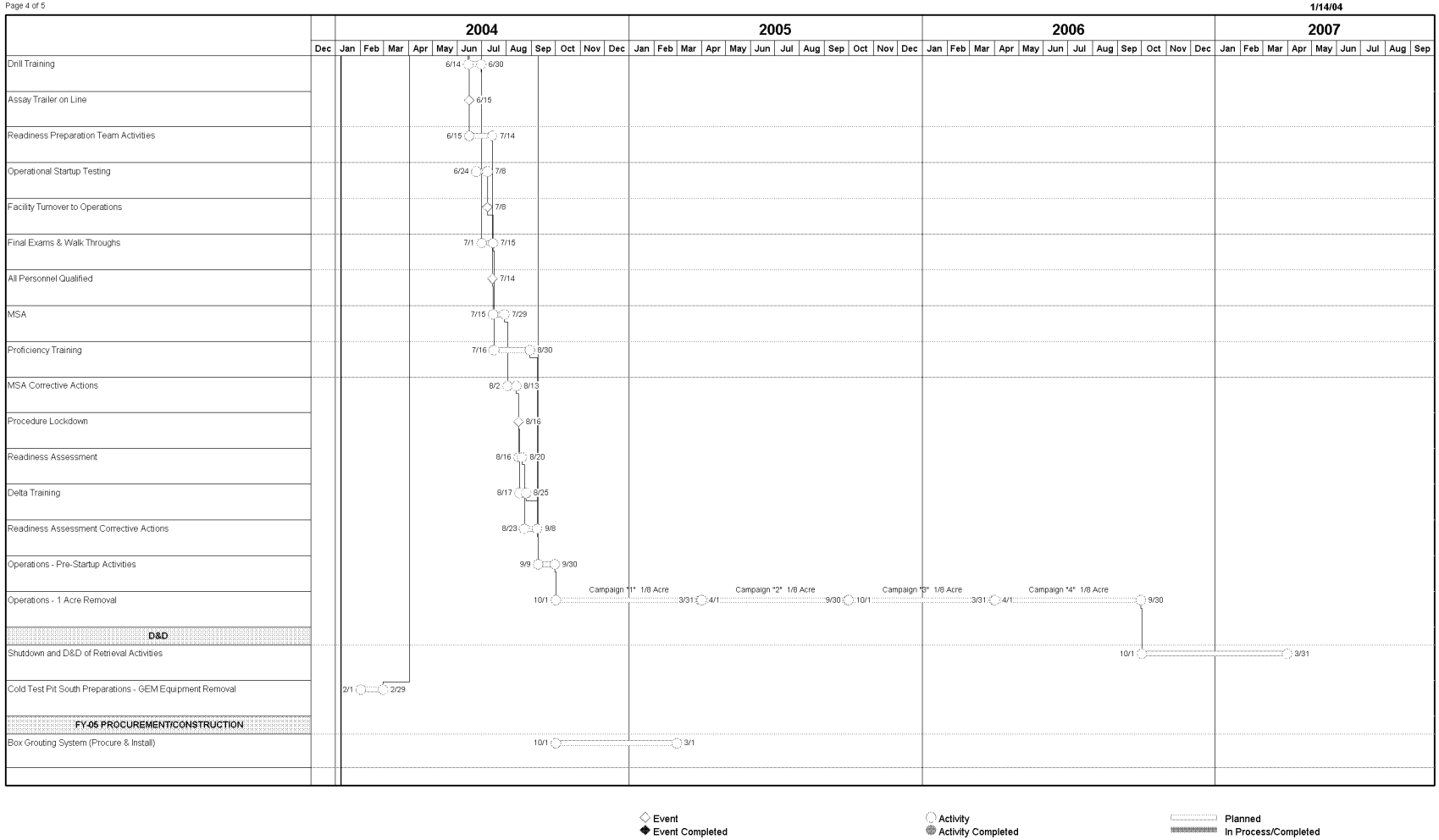
Preliminary Summary Schedule
for
Accelerated Retrieval Project

1/14/04

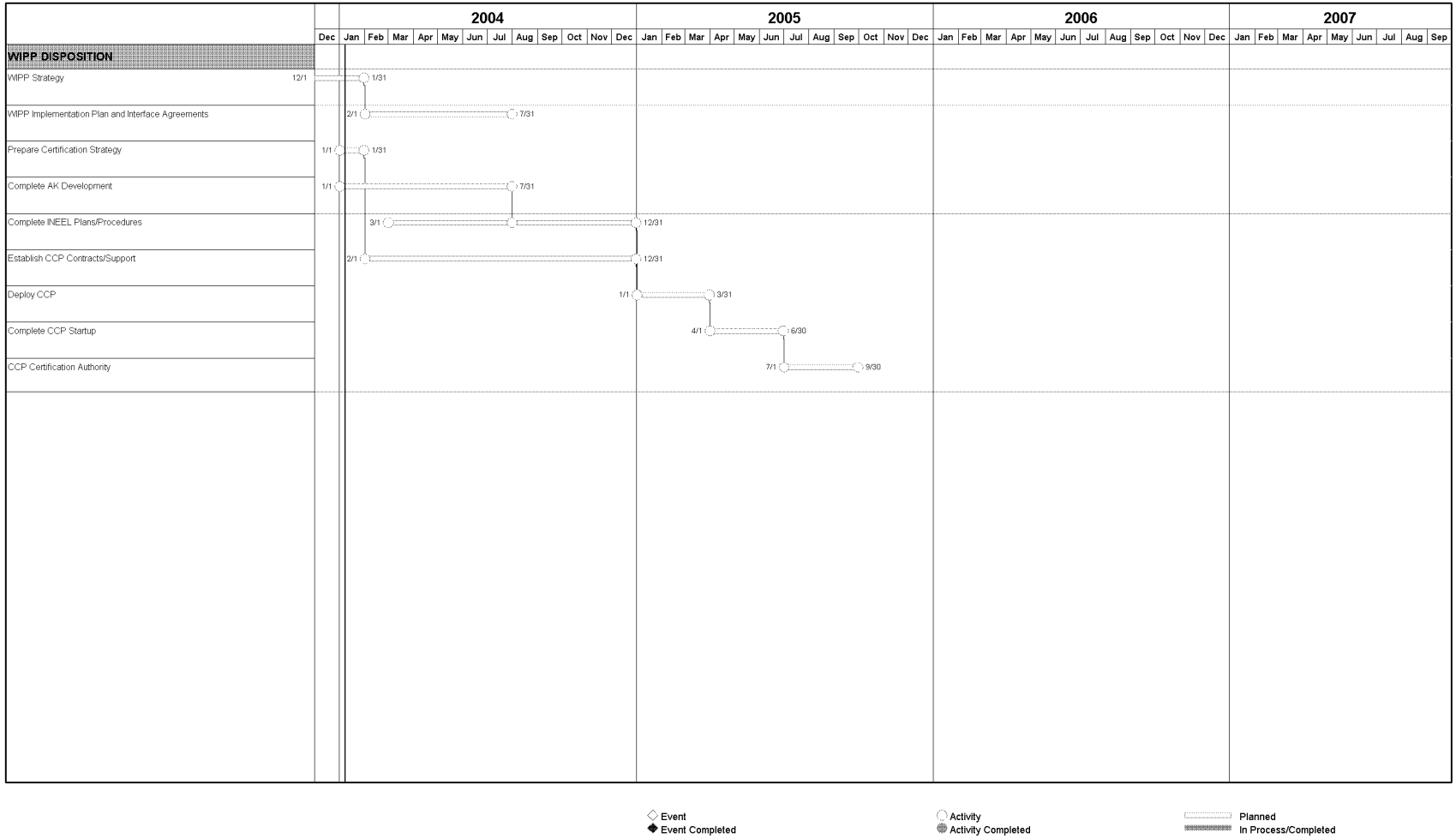


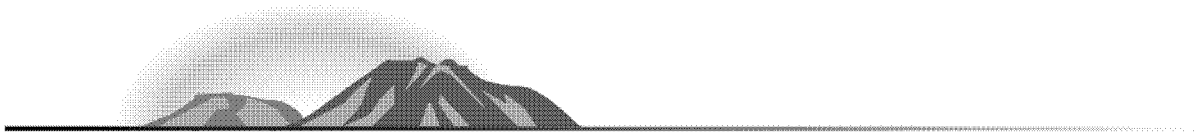
Preliminary Summary Schedule
for
Accelerated Retrieval Project

1/14/04



Preliminary Summary Schedule
for
Accelerated Retrieval Project





Appendix E

Work Breakdown Structure

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Work Breakdown Structure

1 ESH&Q

1.1 Environmental

1.1.1	3PA11107	Support Conceptual Design
1.1.2	3PA11205	Support to Design, Construction, & S/U Engineering Evaluation/Cost
1.1.3	3PA11305	Analysis & Reviews
1.1.4	3PA11405	Air Emissions Evaluation
1.1.5	3PA11505	Waste Management Plan
1.1.6	3PA11605	Environmental Checklist
1.1.7	3PA11705	Glovebox Excavator Method DAC & VOC Samples
1.1.8	3PA11805	Develop EE/CA Approval Memo and Action Memo
1.1.9	DELETED	
1.1.10	3PA11110	DQOs
1.1.11	3PA11115	Sampling & Analysis
1.1.12	3PA11125	Risk Analysis Documentation

1.2 Safety Analysis

1.2.1	3PA11210-3PA11265	PDSA
1.2.2	3PA11015	Safety Analysis Support to Startup
1.2.3	3PA11310-3PA11365	FDSA

1.3 Health and Safety

1.3.1	3Pxxxxxx	RWMC Safety Management
1.3.2	3PA11045	Safety Industrial & IH During Conceptual Design
1.3.3	3PA11050	Safety Industrial &IH During Design S/U

1.4 Fire Protection

1.4.1	3PA11035	Preliminary Fire Hazards Assessment
1.4.2	3PA11070	Final Fire Hazard Analysis
1.4.3	3PA11030	Support to Design

1.5 Radiological Control

1.5.1	3PA11085	Support to Conceptual Design

1.5.2	3PA11090	Support to Design, Construction & S/U
1.6	**Criticality Safety**	
1.6.1	3PA11005	Support to Design
1.6.2	3PA11055	Preliminary Criticality Safety Evaluation
1.6.3	3PA11010	Final Criticality Safety Evaluation
1.7	**Safeguards and Security**	
1.7.1	3PA11115	Support to Conceptual Design
1.7.2	3PA11100	Support to Design, Construction & S/U
1.8	**Quality**	
1.8.1	3PA11075	Quality Support to Conceptual Design
1.8.2	3PA11080	Quality Support to Design, Construction & S/U
1.9	**Emergency Preparedness**	
1.9.1	3PA19105	Revision to Emergency Plan
2	**Design Engineering**	
2.1	**Conceptual Design**	
2.1.1	3PA21105	Inventory Analysis
2.1.2	3PA21205	Glovebox Excavatot Method Observation
2.1.3	3PA21305	DAC Analysis
2.1.4	3PA21405	TFRs
2.1.5	3PA21505	Retrieval & Facility Design
2.1.6	3PA21605	VOC Treatment
2.1.7	Conceptual Design Report	
2.1.7.1	3PA21715	Compile CDR
2.1.7.2	3PA21725	CDR Checking
2.1.7.3	3PA21735	CDR ORB Review
2.1.7.4	3PA21745	CDR Print & Release
2.2	**Final Design**	
2.2.1	Requirements	
2.2.1.1	3PA22116	TFR Revisions & Maintenance
2.2.1.2	3PA22125	Operational Requirements

2.2.2	Facility & Infrastructure		
	2.2.2.1	3PA22215	Retrieval & Airlock Tent Performance Spec
	2.2.2.2	3PA22225	Storage Tent Performance Spec
	2.2.2.3	3PA22235	Misc. Support Trailers Performance Spec
	2.2.2.4	3PA22245	HEPA Specs
	2.2.2.5	3PA22255	Foam Fire Suppression System
	2.2.2.6	3PA22265	Site Prep & Utilities Installation
	2.2.2.7	3PA22275	Retrieval Tent Installation
	2.2.2.8	3PA22285	Storage Tent Installation
2.2.3	3Pxxxx		Retrieval & Packaging
	2.2.3.1	3PA22315	Retrieval Equipment Specs
	2.2.3.2	3PA22325	End Effector Specs & Drawings
	2.2.3.3	3PA22335	Misc. Equipment Specs & Drawings
	2.2.3.4	3PA22345	Americium Repackaging System
	2.2.3.5	3PA22355	Box Grouting System
	2.2.3.6	3PA22365	Large Object Grouting System
	2.2.3.7	3PA22375	Digface Video Specs
2.2.4	Process		
	2.2.4.1	3PA22425	Process Model
2.2.5	Monitoring and Characterization		
	2.2.5.1	3PA22515	Assay System Spec
	2.2.5.2	3PA22530	Rad Monitoring Equipment Specs
	2.2.5.3	3PA22545	Emissions Monitoring Performance Specs
2.2.6	3Pxxxx		Treatment
	2.2.6.1	3PA22615	VOC Treatment System Process
	2.2.6.2	DELETED	
	2.2.6.3	3PA22635	VOC Treatment System Electrical
	2.2.6.4	3PA22645	VOC Treatment System I&C
	2.2.6.5	3PA22655	VOC Treatment System Mechanical Design
	2.2.6.6	DELETED	
	2.2.6.7	3PA22675	VOC Treatment System Structural
	2.2.6.8	3PA22685	VOC Treatment System Mockup Testing Support

2.2.7 3PA22705 Compile AFC Packages

2.2.8 3PA22805 Checking

2.2.9 DELETED

2.2.10 3PA22105 Print & Release

2.2.11 3PA22115 Project Engineering

2.2.12 Technology Demonstrations

2.2.12.1 3PA22120 SWB Assay Demonstration

2.2.12.2 3PA22124 SWB RTR Demonstration

2.3 3PA23005 Engineering Support to Construction/Procurement

2.4 3PA24005 Engineering Support to Operations

2.5 3PA25005 Engineering Support to Mockup

3 Procurement

3.1 3PA31005 Procurement Support to Conceptual Design

3.2 3PA31015 Procurement Support to Execution Plan

3.3 3PA31010 Procurement Support to MSA and Startup

4 Construction

4.1 3PA41005 Support to Design Definition

4.2 3PA41010 Support to Long Lead Procurements

4.3 3PA41015 Support to Project Execution

4.4 3PA41020 Support to Transition/Closeout

5 Decontamination, Decommissioning, and Disposition

6 Operations

6.1 3PA61010 Operations Engineering Support

6.2 DELETED

6.3 3PA61020 System Operational Testing

6.4 3PA61030 Training

6.5 DELETED

6.6 3PA61050 Spare Parts and Misc. Equipment

6.7 3PA61060 Operational Readiness and Review Committee

6.8	**3PA61070**	**RadCon Technical Support**
6.9	**DELETED**	
6.10	**3PA61090**	**Waste Generator Services**
6.11	**DELETED**	
6.12	**DELETED**	
6.13	**3PA61040**	**Administrative Support & Records**
6.14	**Operations**	
6.14.1	3PA61080	Support From Other Organizations
6.14.2	3PA61100	Operations
6.15	**3PA61110**	**Maintenance**
6.16	**3PA61120**	**Consumables**

7 Project Administration and Management

7.1	**3PA71005**	**Project Management**
7.2	**3PA71065**	**Project Controls**
7.3	**3PA71305**	**Emerging Issues**
7.4	**3PA71210**	**Project Execution Plan Development**
7.5	**3PA71215**	**Acquisition Plan**
7.6	**3PA71105**	**Administrative Support**
7.7	**3PA71110**	**Document and Records Management**
7.8	**DELETED**	
7.9	**Cost Estimating**	
7.9.1	3PA71615	Project Management Cost Estimating
7.9.2	3PA71610	Conceptual Design Cost Estimating
7.10	**3PA71015**	**Information Technology**
7.11	**3PA71405**	**Risk Management**
7.12	**3PA71025**	**Action Item Management and Tracking**
7.13	**Travel**	
7.13.1	3PA71620	Travel Management Pkg
7.13.2	3PA71622	Travel WIPP Pkg
7.13.3	3PA71621	Travel Engineering Pk
7.14	**3PA71625**	**Management of Contingency**

7.15	**3PA71505**	**Training**
8	**TRU Waste Disposition**	
8.1	**AK Development**	
8.1.1	3P3411	Incorp. Glovebox Excavator Method Retrieval/Sampling Data to AK Record
8.1.2	3P3375	Prepare Pre-1970 RFETS AK Background Report
8.1.3	3P3376	Pre-1970 RFETS AK collection (FY-2003 Carryover)
8.1.4	3P3380	Compile Supplemental RFETS AK Information
8.1.5	3P3390	Revise Pre-1970 AK Background Report
8.1.6	3PA81060	Enhanced Pre-1970 RFETS AK Report and Studies
8.1.7	3PA81090	Provide Core Team Technical Support
8.1.8	3PA81065	Prepare Pit 4 Area G Non-RFETS AK Report
8.1.9	3PA81055	Perform AK Evaluation
8.2	**Disposition Planning**	
8.2.1	3P3432	Provide TRU Technical Support
8.2.2	3P3435	Develop Retrieved Buried TRU Inv. Assess.
8.2.3	3P3425	Develop Accelerate Retrieval (AR) Certification Strategy
8.2.4	3P3410	Develop Glovebox Excavator Method Waste Disposition Strategy
8.2.5	3PA81045	Prepare Information and Records Management Plan
8.3	**Characterization Development**	
8.3.1	3P3385	Evaluate Glovebox Excavator Method Assay Results
8.3.2	3P3434	Complete Glovebox Excavator Method Data Useability Assessment
8.3.3	3P3415	Develop Surrogate Drum Design and Report
8.3.4	3P3412	Identify S&A Approaches to Augment AK
8.3.5	3P3413	Complete S&A Approach Section
8.3.6	3P3418	Prepare S&A Draft Plan
8.3.7	3P3416	Develop Surrogate Test Plan
8.3.8	3P3417	Fabrication of Surrogate Drums
8.3.9	3P3419	Complete S&A Draft Plan Peer Review
8.3.10	3P3420	Finalize S&A Plan

8.3.11	3PA81040	Production and Disposition Improvement
8.3.12	3PA81020	Perform WIPP Char. Systems Evaluation
8.3.13	3PA81015	Prepare WIPP Sampling Plan
8.3.14	3PA81010	Prepare Waste Stream Retrieval Plan
8.4	**Disposition Implementation**	
8.4.1	3PA81050	Establish CCP Interface
8.4.2	3PA81025	Prepare QAPJP
8.4.3	3PA81030	Prepare WIPP Procedures
8.4.4	3PA81035	Prepare WIPP Transportation Documents
8.4.5	3PA81070	Internal QA Audit
8.4.6	3PA81075	DOE/CBFO Performance Assessment


Idaho Completion Project