

APPENDIX E
ALTERNATIVE 9
SAMPLING REQUIREMENTS

SAMPLING OF THE NICORE PROJECT

Under the preferred alternative of the Final Environmental Impact Statement the proponent would remove a 5,000 ton bulk sample from his mining claims. This sample would be used to evaluate the feasibility of developing the nickel-laterite deposit on a full-scale basis. The next logical step in determining if it is reasonable to expect that a profitable mine may be developed and what will actually be involved in that full-scale development (ie, mining, stockpiling, milling, beneficiation, transport, power needs,etc) is pilot-scale testing.

Based upon the testing of a 1 ton sample, the proponent has shown evidence that implies the production of stainless steel may be feasible, but the bulk-sampling and pilot plant will be used to verify that the deposit can actually be mined, milled and smelted to produce stainless steel profitably. Results from the pilot plant will be used to determine the requirements for reagents and fluxes, additives, configuration of processing components, volume and composition of waste materials, and the grade and volume of products.

If this bulk-testing proves positive and shows a reasonable prospect of technically and economically developing the deposit, then the proponent can use results to design the full scale development of the deposit. Any plan for full-scale development must include specific information regarding drilling and clearing requirements, mining, hauling, milling and processing needs, waste disposal requirements, water and power needs, and requirements for other ancillary facilities and reclamation. A new or a supplemental detailed plan for full-scale development would be required for environmental analysis before approval could be given. Based on information obtained from bulk sampling and processing the Forest Service would determine if there is a reasonable expectation that the plan is technically and economically feasible. The Forest Service would verify sampling, testing and/or analyses; it may be done by FS personnel or by third-party contract.

SAMPLING

Bulk-sample material mined for this testing can be sampled to determine the metal content, grade and other characteristics of the feed material, of the waste and of products being generated by the processing facility. That information would be used to determine if the product is marketable and the operation appears profitable. A comparison of the ore, waste and products will make it possible to quantify the recovery of metals and the quality of the stainless steel produced by the facility. This will allow for a calculation of the volume of ore and other additives that are required to produce a given volume of the product. Based on information provided by the proponent, it is expected that a pilot plant would process between 20 and 60 tons of mined material per day and would require several months to process the entire sample. Forest Service check-sampling should be unannounced and done on an average of at least twice per month

For consistency mined material, waste and product should be sampled at the same time to ensure that the sample reflects the entire process for any given time. If the sampling were to be taken at different times it may not accurately represent the process since it is expected that the operator will be making adjustments to optimize recovery and quality of product.

Check sampling of feed material should consist of two 20 pound samples, which would be split into 10 pound samples, one-half to be retained by the FS, and the other half to be sent to a qualified laboratory

for analysis for Ni, Cr and Fe content. Waste products of the processing (slag) would also be analyzed; a similar sample volume is recommended. The same analysis would be performed for Ni, Cr and Fe. The stainless steel product could be sent to a laboratory such as the Albany Research Center (Albany, Or) for testing to determine the metallic content and grade of stainless steel.

Any additives such as fluxes or reagents would not need to be tested if a manifest or other documentation from the producer is provided. Similarly, if additives of Ni, Cr, or Fe are used then their content can be ascertained by a manifest or bill of sale.

COSTS OF PRODUCTION

Any plan for full-scale mining and processing would need to be supported by an economic analysis provided by the proponent, based on data gathered from the pilot facility.

All elements of mining and pilot plant costs to produce the stainless steel product should be included. A partial list of those elements is listed below:

- Capitalization Costs of equipment
- Facility
- Haul
- Labor
- Power (electrical, petroleum)
- Additives and Reagents
- Maintenance
- Permits
- Reclamation

To make accurate estimates of these costs and to analyze the environmental impacts associated with development, the proponent will have to develop a detailed mining plan indicating excavation limits, excavation sequencing including topsoil removal and stockpiling, overburden removal and disposal, surface and groundwater containment and disposal, equipment and support vehicle needs, type and number of workers, proposed road construction, support facilities including the means by which water and power will be provided, mill location, ore stockpiling and mill waste disposal requirements, construction schedules and acquisition of the other required federal and state permits.

A detailed plan of a processing facility will need to be provided, which will be based upon the information gathered from as a result of this bulk sampling and pilot plant testing activity. The mill feed rate and production rate data generated by this testing, can then be used to determine and evaluate the mining rate, haulage requirements, water disposal requirements and mill waste disposal requirements for the project.

If the proponent chooses to not build his own facility and elects to use an existing facility elsewhere, then he should be able to provide the Forest Service some instrument that shows what price that facility will pay for his ore. In this situation an economic analysis of the mining, transportation and storage costs should be performed to show the potential profitability of transporting the mined material to that facility.